



U.S. Environmental Protection Agency
Region 8
Technical and Management Services

Laboratory Services Program

Certificate of Analysis

Ref: 8TMS-L

MEMORANDUM

Date: 10/12/10

Subject: Analytical Results--- **Upper Animas - Rush Water - Oct 2010 / DG-214**

From: Don Goodrich; EPA Region 8 Analytical Chemistry WAM

To: Kent Alexander
Superfund
1595 Wynkoop Street

Received Sample Set(s), [Work Order : Date Received]:

[C101004 : 10/11/2010]

Attached are the analytical results for the samples received from the Upper Animas - Rush Water - Oct 2010 sampling event, according to TDF DG-214. All analyses were performed within their method specified holding times unless otherwise noted in the following narrative.

These samples were prepared, analyzed, and verified by the Environmental Services Assistance Team Laboratory (ESAT) according to the requirements of the Technical Direction Form (TDF).

Note: The laboratory herewith transmits this deliverable to the program/project partner for determination of "final data usability" which may include data validation and data quality assessment per and in accordance with EPA QA/G-8, *Guidance on Environmental Data Verification and Data Validation*, November 2002, EPA/240/R-02/004. Laboratory data qualifiers are applied based on the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, October 2004, referred to as "NFGI".

Case Narrative

C101004

Quality Assessment: Unless indicated by exception, the QA/QC associated with this sample set produced data within the TDF-specified criteria.

Holding Times: All samples were analyzed within their method-specified technical holding time(s).

1. Initial and Continuing calibration blanks (ICBs and CCBs).

Exceptions: None.

2. Preparation (PB) / Method blanks (MB)

Exceptions: None.

3. Interference Checks (ICSA / ICSAB) for ICP-MS and ICP-OE analyses only.

Exceptions: None.

4. Initial and Continuing calibration verification analyses (ICVs and CCVs).

Exceptions: None.

5. Laboratory Control Sample (LCS) or second source analysis or SRM.

Exceptions: None.

6. Laboratory Fortified blank (LFB) / Blank spike (BS), same source as used for the matrix spikes.

PBS performed with analyses/methods requiring preparation or digestion prior to analysis.

Exceptions: None.

7. Contract Reporting Detection Limit Standard, labeled as CRA, CRDL or CRL.

Exceptions: None.

8. Laboratory Duplicate (DUP). "Source" identifies field sample duplicated in the laboratory. If either the "source" or the duplicate result is <5X the reporting limit, the %D limit of 20% does not apply.

Exceptions: None.

9. Laboratory Matrix Spike (MS) and spike duplicate (MSD). "Source" defines original field sample fortified prior to analysis. Percent recovery (%R) limits do not apply when sample concentration(s) exceed the corresponding analyte spike level by a factor of 4 or greater.

Exceptions: None.

10. Serial Dilution sample analysis (SRD). "Source" is parent field sample diluted 1:5 in the laboratory.

Performed for ICP-OE and ICP-MS metals analyses. Percent difference (%D) limits do not apply when analyte concentration(s) are below 50x the source sample's MDL (or 10x its PQL).

Exceptions: None.

11. Internal standards, criteria specified for ICP-MS analyses only, monitored at the instrument.

Exceptions: None.

12. Any calibration using more than two-points produced a correlation coefficient equal to or greater than 0.995.

Exceptions: None.

Acronyms and Definitions:

ESAT	Environmental Services Assistance Team
J	Data Estimated qualifier (also applied to all data less than PQL, greater than or equal to MDL)
MDL	Method Detection Limit
PQL	Practical Quantitation Limit, also known as reporting limit.
RPD	Relative Percent Difference (difference divided by the mean)
%D	Percent difference, serial dilution criteria unit, difference divided by the original result.
%R	Percent recovery, analyzed (less sample contribution) divided by true value
<	Analyte NOT DETECTED at or above the Method Detection Limit (MDL)
mg/L	Parts per million (milligrams per liter). Solids equivalent = mg/Kg.
ug/L	Parts per billion (micrograms per liter). Solids equivalent = ug/Kg.
NR	No Recovery (matrix spike) - Often seen for calcium/magnesium when their concentration exceeds the spike level by > 4x.
NFGI	USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004
RE	Sample Re-analysis. Usually seen on raw data and sequences for required sample dilutions due to over-range analytes.

Method(s) Summary:

As defined in the Technical Direction Form (TDF), some or all of the methods listed below were used for the determination of the reported target analytes.

From EPA's *Methods for the Determination of Metals in Environmental Samples*, Supplement I, May 1994, dissolved, total, and/or total recoverable metals were determined by:

- Method 200.7 / 6010B using a PE Optima ICP-OE (ICP).
- Method 200.8 / 6020 using a Perkin-Elmer Elan 6000 ICP-MS.
- Method 200.2 for total recoverable metals (only) digestion.
- Method 245.1 using a Perkin-Elmer FIMS CVAA (aqueous mercury only).

From *Standard Methods for the Examination of Water and Wastewater*, 18th Edition, 1992, Method 2340B was used for the calculated hardness determination. Hardness is reported as mg(milligram) equivalent CaCO₃ per liter (L) determined as follows:

$$\text{Calculated hardness} = 2.497 * (\text{Calcium, mg/L}) + 4.118 * (\text{Magnesium, mg/L}).$$

From EPA's *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, SW-846,

- Method 3015A was used for microwave assisted total metals digestion.
- Method 7473 was used for mercury in solids.

From EPA's *Determination of Inorganic Anions by Ion Chromatography*, Revision 2.1, 1993, Method 300.0 was used to determine the anions.

From EPA's *Methods for Chemical Analysis of Water and Wastes*, March 1983:

- Method 310.1 was followed for the alkalinity determination.
- Method 160.1 was followed for gravimetric total dissolved solids (TDS) determination.
- Method 160.2 was used for gravimetric total suspended solids (TSS) determination.
- Method 415.3 was used for total organic carbon (TOC) determination using either an Apollo 9000 or Phoenix 8000 Non-Dispersive IR (NDIR) system. Also known as dissolved organic carbon (DOC) when performed on the dissolved sample fraction.

The quality control procedures listed in the TDF request were utilized by ESAT to verify accuracy of the results and to evaluate any matrix interferences.

Project Name: Upper Animas - Rush Water - Oct 2010

Certificate of Analysis

TDF #:

DG-214

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: UASW001	Date / Time Sampled: 10/08/10 10:00:00	Workorder: C101004
EPA Tag No.:	Matrix: Water	Lab Number: C101004-01 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	3240		ug/L	20.0	1	10/11/2010	SW	1010050
200.7	Barium	18.1		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Calcium	107000		ug/L	100	1	10/11/2010	SW	1010050
200.7	Copper	88.6		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Iron	2170		ug/L	100	1	10/11/2010	SW	1010050
200.7	Magnesium	6790		ug/L	100	1	10/11/2010	SW	1010050
200.7	Manganese	3040		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Potassium	1200		ug/L	250	1	10/11/2010	SW	1010050
200.7	Sodium	3300		ug/L	250	1	10/11/2010	SW	1010050
200.7	Strontium	1230		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Thallium	< 50.0	U	ug/L	20.0	1	10/11/2010	SW	1010050
200.7	Titanium	< 20.0	U	ug/L	5.00	1	10/11/2010	SW	1010050
200.7	Zinc	1530		ug/L	10.0	1	10/11/2010	SW	1010050
200.8	Antimony	< 10.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Cadmium	4.54		ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Chromium	< 10.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Cobalt	12.7		ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Lead	8.38		ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Molybdenum	1.23	J	ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Nickel	6.69	J	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Selenium	< 10.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Silver	1.19	J	ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	10/12/2010	SV	1010052
2340B	Hardness	295		mg/L	2	1	10/11/2010	SW	1010050

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: EPA Tag No.:	UASW001	Date / Time Sampled: Matrix:	10/08/10 00:00 Water	Workorder: Lab Number:	C101004 C101004-02 A
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Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	3320		ug/L	20.0	1	10/11/2010	SW	1010050
200.7	Barium	18.4		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Calcium	108000		ug/L	100	1	10/11/2010	SW	1010050
200.7	Copper	91.3		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Iron	2180		ug/L	100	1	10/11/2010	SW	1010050
200.7	Magnesium	6930		ug/L	100	1	10/11/2010	SW	1010050
200.7	Manganese	3060		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Potassium	1210		ug/L	250	1	10/11/2010	SW	1010050
200.7	Sodium	3350		ug/L	250	1	10/11/2010	SW	1010050
200.7	Strontium	1260		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Thallium	< 50.0	U	ug/L	20.0	1	10/11/2010	SW	1010050
200.7	Titanium	< 20.0	U	ug/L	5.00	1	10/11/2010	SW	1010050
200.7	Zinc	1550		ug/L	10.0	1	10/11/2010	SW	1010050
200.8	Antimony	< 10.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Cadmium	4.91		ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Chromium	< 10.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Cobalt	11.5		ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Lead	7.99		ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Molybdenum	< 2.00	U	ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Nickel	5.49	J	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Selenium	< 10.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Silver	< 5.00	U	ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	10/12/2010	SV	1010052
2340B	Hardness	299		mg/L	2	1	10/11/2010	SW	1010050

Project Name: Upper Animas - Rush Water - Oct 2010

Certificate of Analysis

TDF #: DG-214

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID:	UASW002	Date / Time Sampled:	10/08/10 00:00	Workorder:	C101004
EPA Tag No.:		Matrix:	Water	Lab Number:	C101004-03-A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	7350		ug/L	20.0	1	10/11/2010	SW	1010050
200.7	Barium	12.5		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Calcium	165000		ug/L	100	1	10/11/2010	SW	1010050
200.7	Copper	180		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Iron	7260		ug/L	100	1	10/11/2010	SW	1010050
200.7	Magnesium	10400		ug/L	100	1	10/11/2010	SW	1010050
200.7	Manganese	4570		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Potassium	1750		ug/L	250	1	10/11/2010	SW	1010050
200.7	Sodium	4350		ug/L	250	1	10/11/2010	SW	1010050
200.7	Strontium	1950		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Thallium	< 50.0	U	ug/L	20.0	1	10/11/2010	SW	1010050
200.7	Titanium	< 20.0	U	ug/L	5.00	1	10/11/2010	SW	1010050
200.7	Zinc	2590		ug/L	10.0	1	10/11/2010	SW	1010050
200.8	Antimony	< 10.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Cadmium	7.50		ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Chromium	< 10.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Cobalt	22.5		ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Lead	30.7		ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Molybdenum	< 2.00	U	ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Nickel	11.4		ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Selenium	< 10.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Silver	< 5.00	U	ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	10/12/2010	SV	1010052
2340B	Hardness	456		mg/L	2	1	10/11/2010	SW	1010050

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: UASW003	Date / Time Sampled: 10/08/10 00:00	Workorder: C101004
EPA Tag No.:	Matrix: Water	Lab Number: C101004-04 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	75.3		ug/L	20.0	1	10/11/2010	SW	1010050
200.7	Barium	25.5		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Calcium	49500		ug/L	100	1	10/11/2010	SW	1010050
200.7	Copper	3.69		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Iron	< 250	U	ug/L	100	1	10/11/2010	SW	1010050
200.7	Magnesium	3190		ug/L	100	1	10/11/2010	SW	1010050
200.7	Manganese	1480		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Potassium	639	J	ug/L	250	1	10/11/2010	SW	1010050
200.7	Sodium	2280		ug/L	250	1	10/11/2010	SW	1010050
200.7	Strontium	509		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Thallium	< 50.0	U	ug/L	20.0	1	10/11/2010	SW	1010050
200.7	Titanium	< 20.0	U	ug/L	5.00	1	10/11/2010	SW	1010050
200.7	Zinc	338		ug/L	10.0	1	10/11/2010	SW	1010050
200.8	Antimony	< 5.00	U	ug/L	2.50	5	10/12/2010	SV	1010052
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	10/12/2010	SV	1010052
200.8	Cadmium	0.640	J	ug/L	0.500	5	10/12/2010	SV	1010052
200.8	Chromium	< 5.00	U	ug/L	2.50	5	10/12/2010	SV	1010052
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	10/12/2010	SV	1010052
200.8	Lead	< 1.00	U	ug/L	0.500	5	10/12/2010	SV	1010052
200.8	Molybdenum	0.984	J	ug/L	0.500	5	10/12/2010	SV	1010052
200.8	Nickel	< 5.00	U	ug/L	2.50	5	10/12/2010	SV	1010052
200.8	Selenium	< 5.00	U	ug/L	2.50	5	10/12/2010	SV	1010052
200.8	Silver	< 2.50	U	ug/L	0.500	5	10/12/2010	SV	1010052
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	10/12/2010	SV	1010052
2340B	Hardness	137		mg/L	2	1	10/11/2010	SW	1010050

"J" Qualifier indicates an estimated value

Project Name: Upper Animas - Rush Water - Oct 2010

Certificate of Analysis

TDF #:

DG-214

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
ICPMS-PE DRC-II									
Batch 1010052 - No Lab Prep Reqd		<i>Water</i>							ICPMS-PE DRC-II
Method Blank (1010052-BLK1)		Dilution Factor: 1							Prepared & Analyzed: 10/12/10
Vanadium < 1.00 2.00 ug/L Chromium < 0.500 1.00 " Cobalt < 0.100 0.200 " Nickel < 0.500 1.00 " Arsenic < 0.500 2.00 " Selenium < 0.500 1.00 " Molybdenum < 0.100 0.200 " Silver < 0.100 0.500 " Cadmium < 0.100 0.200 " Antimony < 0.500 1.00 " Lead < 0.100 0.200 "									
Method Blank Spike (1010052-BS1)		Dilution Factor: 1							Prepared & Analyzed: 10/12/10
Vanadium 98.1 2.00 ug/L 100 98 85-115 Chromium 99.1 1.00 " 100 99 85-115 Cobalt 98.0 0.200 " 100 98 85-115 Nickel 98.2 1.00 " 100 98 85-115 Arsenic 104 2.00 " 100 104 85-115 Selenium 530 1.00 " 500 106 85-115 Molybdenum 96.0 0.200 " 100 96 85-115 Silver 101 0.500 " 100 101 85-115 Cadmium 98.0 0.200 " 100 98 85-115 Antimony 98.7 1.00 " 100 99 85-115 Lead 97.0 0.200 " 100 97 85-115									
Duplicate (1010052-DUP1)		Dilution Factor: 1			Source: C101004-01	Prepared & Analyzed: 10/12/10			
Vanadium < 10.0 20.0 ug/L < 10.0 20 Chromium < 5.00 10.0 " < 5.00 20 Cobalt 12.3 2.00 " 12.7 3 20 Nickel 6.37 10.0 " 6.69 5 20 Arsenic < 5.00 20.0 " < 5.00 20 Selenium < 5.00 10.0 " < 5.00 20 Molybdenum < 1.00 2.00 " 1.23 20 Silver < 1.00 5.00 " 1.19 20 Cadmium 4.56 2.00 " 4.54 0.5 20 Antimony < 5.00 10.0 " < 5.00 20 Lead 8.19 2.00 " 8.38 2 20									

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DG-214

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 1010052 - No Lab Prep Req'd		<i>Water</i>							ICPMS-PE DRC-II
Matrix Spike (1010052-MS1)		Dilution Factor: 1	Source: C101004-01			Prepared & Analyzed: 10/12/10			
Vanadium	96.9	20.0	ug/L	100	< 10.0	97	75-125		
Chromium	98.0	10.0	"	100	< 5.00	98	75-125		
Cobalt	110	2.00	"	100	12.7	97	75-125		
Nickel	106	10.0	"	100	6.69	99	75-125		
Arsenic	104	20.0	"	100	< 5.00	104	75-125		
Selenium	537	10.0	"	500	< 5.00	107	75-125		
Molybdenum	95.4	2.00	"	100	1.23	94	75-125		
Silver	99.1	5.00	"	100	1.19	98	75-125		
Cadmium	106	2.00	"	100	4.54	102	75-125		
Antimony	97.7	10.0	"	100	< 5.00	98	75-125		
Lead	105	2.00	"	100	8.38	96	75-125		
Matrix Spike Dup (1010052-MSD1)		Dilution Factor: 1	Source: C101004-01			Prepared & Analyzed: 10/12/10			
Vanadium	98.5	20.0	ug/L	100	< 10.0	99	75-125	2	20
Chromium	96.9	10.0	"	100	< 5.00	97	75-125	1	20
Cobalt	109	2.00	"	100	12.7	96	75-125	1	20
Nickel	105	10.0	"	100	6.69	98	75-125	0.7	20
Arsenic	112	20.0	"	100	< 5.00	112	75-125	8	20
Selenium	559	10.0	"	500	< 5.00	112	75-125	4	20
Molybdenum	98.3	2.00	"	100	1.23	97	75-125	3	20
Silver	102	5.00	"	100	1.19	101	75-125	3	20
Cadmium	106	2.00	"	100	4.54	102	75-125	0.1	20
Antimony	97.8	10.0	"	100	< 5.00	98	75-125	0.08	20
Lead	108	2.00	"	100	8.38	100	75-125	3	20
Batch 1010053 - 1010052		<i>Water</i>							ICPMS-PE DRC-II
Serial Dilution (1010053-SRD1)		Dilution Factor: 5	Source: C101004-01			Prepared & Analyzed: 10/12/10			
Vanadium	< 50.0	100	ug/L		< 10.00				10
Chromium	< 25.0	50.0	"		< 5.00				10
Cobalt	12.6	10.0	"		12.7			0.5	10
Nickel	< 25.0	50.0	"		6.69				10
Arsenic	< 25.0	100	"		< 5.00				10
Selenium	< 25.0	50.0	"		< 5.00				10
Molybdenum	< 5.00	10.0	"		1.23				10
Silver	< 5.00	25.0	"		1.19				10
Cadmium	5.12	10.0	"		4.54				10
Antimony	< 25.0	50.0	"		< 5.00				10
Lead	7.58	10.0	"		8.38			10	10

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
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ICPOE - PE Optima

Batch 1010050 - No Prep Req

Water

ICPOE - PE Optima

Method Blank (1010050-BLK1)	Dilution Factor: 1	Prepared & Analyzed: 10/11/10				
Aluminum	< 20.0	50.0	ug/L			
Barium	< 2.00	5.00	"			
Beryllium	< 2.00	5.00	"			
Calcium	< 100	250	"			
Copper	< 2.00	2.00	"			
Iron	< 100	250	"			
Potassium	< 250	1000	"			
Magnesium	< 100	250	"			
Manganese	< 2.00	5.00	"			
Sodium	< 250	500	"			
Strontium	< 2.00	10.0	"			
Titanium	< 5.00	20.0	"			
Thallium	< 20.0	50.0	"			
Zinc	< 10.0	20.0	"			

Method Blank Spike (1010050-BS1)	Dilution Factor: 1	Prepared & Analyzed: 10/11/10				
Aluminum	10360	50.0	ug/L	10100	103	85-115
Barium	98.35	5.00	"	100	98	85-115
Beryllium	101.3	5.00	"	100	101	85-115
Calcium	10130	250	"	10100	100	85-115
Copper	94.93	2.00	"	100	95	85-115
Iron	10330	250	"	10100	102	85-115
Potassium	10310	1000	"	10100	102	85-115
Magnesium	10320	250	"	10100	102	85-115
Manganese	99.79	5.00	"	100	100	85-115
Sodium	10360	500	"	10100	103	85-115
Strontium	524.0	10.0	"	500	105	85-115
Titanium	< 5.00	20.0	"			85-115
Thallium	103.4	50.0	"	100	103	85-115
Zinc	100.6	20.0	"	100	101	85-115

Project Name: Upper Animas - Rush Water - Oct 2010

Certificate of Analysis

TDF #:

DG-214

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 1010050 - No Prep Req		<i>Water</i>							ICPOE - PE Optima
Duplicate (1010050-DUP1)		Dilution Factor: 1	Source: C101004-01		Prepared & Analyzed: 10/11/10				
Aluminum	3306	50.0	ug/L		3245		2	20	
Barium	18.30	5.00	"		18.06		1	20	
Beryllium	< 2.00	5.00	"		< 2.00				20
Calcium	109000	250	"		106900		2	20	
Copper	90.36	2.00	"		88.61		2	20	
Iron	2215	250	"		2167		2	20	
Potassium	1216	1000	"		1203		1	20	
Magnesium	6935	250	"		6790		2	20	
Manganese	3056	5.00	"		3044		0.4	20	
Sodium	3361	500	"		3299		2	20	
Strontium	1251	10.0	"		1235		1	20	
Titanium	< 5.00	20.0	"		< 5.00				20
Thallium	< 20.0	50.0	"		< 20.0				20
Zinc	1545	20.0	"		1528		1	20	
Matrix Spike (1010050-MS1)		Dilution Factor: 1	Source: C101004-01		Prepared & Analyzed: 10/11/10				
Aluminum	13920	50.0	ug/L	10100	3245	106	75-125		
Barium	115.4	5.00	"	100	18.06	97	75-125		
Beryllium	102.4	5.00	"	100	< 2.00	102	75-125		
Calcium	116200	250	"	10100	106900	92	75-125		
Copper	184.8	2.00	"	100	88.61	96	75-125		
Iron	12530	250	"	10100	2167	103	75-125		
Potassium	11910	1000	"	10100	1203	106	75-125		
Magnesium	17370	250	"	10100	6790	105	75-125		
Manganese	3039	5.00	"	100	3044	NR	75-125		
Sodium	14150	500	"	10100	3299	107	75-125		
Strontium	1723	10.0	"	500	1235	98	75-125		
Titanium	< 5.00	20.0	"		< 5.00		75-125		
Thallium	91.03	50.0	"	100	< 20.0	91	75-125		
Zinc	1551	20.0	"	100	1528	23	75-125		

Project Name: Upper Animas - Rush Water - Oct 2010

Certificate of Analysis

TDF #:

DG-214

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 1010050 - No Prep Req									
<i>Water</i>									
Matrix Spike Dup (1010050-MSD1)									
		Dilution Factor: 1			Source: C101004-01			Prepared & Analyzed: 10/11/10	
Aluminum	13880	50.0	ug/L	10100	3245	105	75-125	0.2	20
Barium	117.0	5.00	"	100	18.06	99	75-125	1	20
Beryllium	104.0	5.00	"	100	< 2.00	104	75-125	2	20
Calcium	115800	250	"	10100	106900	87	75-125	0.4	20
Copper	185.8	2.00	"	100	88.61	97	75-125	0.5	20
Iron	12650	250	"	10100	2167	104	75-125	0.9	20
Potassium	11900	1000	"	10100	1203	106	75-125	0.1	20
Magnesium	17330	250	"	10100	6790	104	75-125	0.2	20
Manganese	3061	5.00	"	100	3044	17	75-125	0.7	20
Sodium	14080	500	"	10100	3299	107	75-125	0.5	20
Strontium	1738	10.0	"	500	1235	101	75-125	0.9	20
Titanium	< 5.00	20.0	"		< 5.00		75-125		20
Thallium	100.2	50.0	"	100	< 20.0	100	75-125	10	20
Zinc	1574	20.0	"	100	1528	46	75-125	1	20
Batch 1010051 - 1010050									
<i>Water</i>									
Serial Dilution (1010051-SRD1)									
		Dilution Factor: 5			Source: C101004-01			Prepared & Analyzed: 10/11/10	
Aluminum	3239	1250	ug/L		3245			0.2	10
Barium	< 500	1250	"		18.06				10
Beryllium	< 500	1250	"		< 100.00				10
Calcium	106900	1250	"		106900			0.02	10
Copper	< 500	1250	"		88.61				10
Iron	2141	1250	"		2167			1	10
Potassium	1165	1250	"		1203			3	10
Magnesium	6822	1250	"		6790			0.5	10
Manganese	3109	1250	"		3044			2	10
Sodium	3270	1250	"		3299			0.9	10
Strontium	1259	1250	"		1235			2	10
Titanium	< 500	1250	"		< 100.00				10
Thallium	< 500	1250	"		< 100.00				10
Zinc	1551	1250	"		1528			2	10

NOTE: %R = % Recovery, %R limits do not apply when sample levels exceed 4x the spike level.

RPD = Relative Percent Difference, %D = % Difference, DL = Detection Limit for QC sample

TDF #: DG-214

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7Analysis Name: ICPOE Diss. Metals-2010Instrument: ICPOE - PE OptimaWork Order: Nu C101004Analytical Sequence: 1010051 DissolvedConcentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)	PQL
		1	2	3	4		
Aluminum	-2.02	1	2	3	4	1010050-BLK1	NA
		-1.26	-2.81			-2.03	50.00
		5	6	7	8		
Barium	-0.08	1	2	3	4	1010050-BLK1	NA
		-0.05	0.09			-0.02	5.00
		5	6	7	8		
Beryllium	0.01	1	2	3	4	1010050-BLK1	NA
		0.00	0.07			0.00	5.00
		5	6	7	8		
Calcium	-0.02	1	2	3	4	1010050-BLK1	NA
		0.23	2.45			-0.18	250.00
		5	6	7	8		
Copper	0.06	1	2	3	4	1010050-BLK1	NA
		0.27	0.32			0.24	2.00
		5	6	7	8		
Iron	-13.83	1	2	3	4	1010050-BLK1	NA
		3.39	-9.12			-5.57	250.00
		5	6	7	8		
Potassium	0.05	1	2	3	4	1010050-BLK1	NA
		12.27	5.41			-1.94	1,000.00
		5	6	7	8		
Magnesium	-0.31	1	2	3	4	1010050-BLK1	NA
		0.52	0.54			-0.31	250.00
		5	6	7	8		

Project Name: Upper Animas - Rush Water - Oct 2010

Certificate of Analysis

TDF #: DG-214

TechLaw Inc., ESAT Region 8

INORGANIC ANALYSES DATA SHEET

Initial and Continuing Calibration Blanks

Analytical Method: 200.7Analysis Name: ICPOE Diss. Metals-2010Instrument: ICPOE - PE OptimaWork Order: Nu C101004Analytical Sequence: 1010051 DissolvedConcentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)	PQL
		1	2	3	4		
Manganese	0.04	1	2	3	4	1010050-BLK1	NA
		0.03	0.03			-0.03	5.00
		5	6	7	8		
Sodium	-2.13	1	2	3	4	1010050-BLK1	NA
		3.61	0.71			-2.62	500.00
		5	6	7	8		
Strontium	0.02	1	2	3	4	1010050-BLK1	NA
		0.02	0.05			0.00	10.00
		5	6	7	8		
Titanium	0.56	1	2	3	4	1010050-BLK1	NA
		0.30	0.23			0.07	20.00
		5	6	7	8		
Thallium	9.43	1	2	3	4	1010050-BLK1	NA
		-1.95	9.13			10.74	50.00
		5	6	7	8		
Zinc	0.15	1	2	3	4	1010050-BLK1	NA
		-0.02	1.28			0.92	20.00
		5	6	7	8		

TechLaw Inc., ESAT Region 8

INORGANIC ANALYSES DATA SHEET

Initial and Continuing Calibration Blanks

Analytical Method: 200.8Analysis Name: ICPMS Diss. Metals-2010Instrument: ICPMS-PE DRC-IIWork Order: Nu C101004Analytical Sequence: 1010053 DissolvedConcentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
		1	2	3	4	1010052-BLK1	NA	
Vanadium	-0.01	1	-0.02			0.01	NA	2.00
		5	6	7	8			
Chromium	-0.05	1	2	3	4	0.01	NA	1.00
		-0.10	-0.06					
		5	6	7	8			
Cobalt	0.01	1	2	3	4	0.00	NA	0.20
		0.00	0.01					
		5	6	7	8			
Nickel	0.00	1	2	3	4	0.00	NA	1.00
		0.00	0.01					
		5	6	7	8			
Arsenic	0.02	1	2	3	4	0.05	NA	2.00
		0.05	0.01					
		5	6	7	8			
Selenium	0.01	1	2	3	4	0.12	NA	1.00
		0.06	0.10					
		5	6	7	8			
Molybdenum	0.05	1	2	3	4	0.07	NA	0.20
		0.07	0.04					
		5	6	7	8			
Silver	0.10	1	2	3	4	0.04	NA	0.50
		0.10	0.08					
		5	6	7	8			

Project Name: Upper Animas - Rush Water - Oct 2010

Certificate of Analysis

TDF #: DG-214

TechLaw Inc., ESAT Region 8

INORGANIC ANALYSES DATA SHEET

Initial and Continuing Calibration Blanks

Analytical Method: 200.8Analysis Name: ICPMS Diss. Metals-2010Instrument: ICPMS-PE DRC-IIWork Order: Nu C101004Analytical Sequence: 1010053 DissolvedConcentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
		1	2	3	4	1010052-BLK1	NA	
Cadmium	0.05	0.03	0.02			0.01	NA	0.20
		5	6	7	8			
Antimony	0.08	1	2	3	4	0.42	NA	1.00
		0.06	0.07					
		5	6	7	8			
Lead	0.02	1	2	3	4	0.01	NA	0.20
		0.01	0.01					
		5	6	7	8			

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima

Method: 200.7

Analysis Name: ICPOE Diss. Metals-2010

Sequence: 1010051

Work Order: C101004

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Aluminum	1000	989.1	98.9	1			2			3		
				12500	12610	100.9	12500	12420	99.4			
				4			5			6		
				7			8			9		
				1			2			3		
				500	498.2	99.6	500	502.9	100.6			
				4			5			6		
Barium	1000	1008	100.8	1			2			3		
				500	498.2	99.6	500	502.9	100.6			
				4			5			6		
				7			8			9		
				1			2			3		
				500	509.8	102.0	500	508.7	101.7			
				4			5			6		
Beryllium	1000	999.5	100.0	1			2			3		
				500	509.8	102.0	500	508.7	101.7			
				4			5			6		
				7			8			9		
				1			2			3		
				12500	12600	100.8	12500	12280	98.2			
				4			5			6		
Calcium	1000	935.7	93.6	1			2			3		
				12500	12600	100.8	12500	12280	98.2			
				4			5			6		
				7			8			9		
				1			2			3		
				1000	998.7	99.9	1000	1000	100.0			
				4			5			6		
Copper	1000	981.4	98.1	1			2			3		
				1000	998.7	99.9	1000	1000	100.0			
				4			5			6		
				7			8			9		
				1			2			3		
				12500	12830	102.6	12500	12420	99.4			
				4			5			6		
Iron	1000	952.9	95.3	1			2			3		
				12500	12830	102.6	12500	12420	99.4			
				4			5			6		
				7			8			9		

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima

Method: 200.7

Analysis Name: ICPOE Diss. Metals-2010

Sequence: 1010051

Work Order: C101004

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Magnesium	1000	1010	101.0	1			2			3		
				12500	12720	101.8	12500	12520	100.2			
				4			5			6		
				7			8			9		
				1			2			3		
				1000	1006	100.6	1000	1010	101.0			
				4			5			6		
				7			8			9		
Manganese	1000	1021	102.1	1			2			3		
				1000	1006	100.6	1000	1010	101.0			
				4			5			6		
				7			8			9		
				1			2			3		
				25000	25170	100.7	25000	24930	99.7			
				4			5			6		
				7			8			9		
Potassium	5000	4884	97.7	1			2			3		
				25000	25170	100.7	25000	24930	99.7			
				4			5			6		
				7			8			9		
				1			2			3		
				12500	12510	100.1	12500	12440	99.5			
				4			5			6		
				7			8			9		
Sodium	1000	957.0	95.7	1			2			3		
				12500	12510	100.1	12500	12440	99.5			
				4			5			6		
				7			8			9		
				1			2			3		
				500	507.0	101.4	500	516.9	103.4			
				4			5			6		
				7			8			9		
Strontium	1000	1013	101.3	1			2			3		
				500	507.0	101.4	500	516.9	103.4			
				4			5			6		
				7			8			9		
				1			2			3		
				2500	2530	101.2	2500	2597	103.9			
				4			5			6		
				7			8			9		
Thallium	5000	4917	98.3	1			2			3		
				2500	2530	101.2	2500	2597	103.9			
				4			5			6		
				7			8			9		
				1			2			3		

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima

Method: 200.7

Analysis Name: ICPOE Diss. Metals-2010

Sequence: 1010051

Work Order: C101004

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Titanium	1000	1013	101.3	1			2			3		
				500	503.5	100.7	500	503.2	100.6			
				4			5			6		
				7			8			9		
Zinc	1000	994.1	99.4	1			2			3		
				2500	2552	102.1	2500	2565	102.6			
				4			5			6		
				7			8			9		

Metals - ICV & CCV %R Criteria = 90 - 110%, Classical Chemistry %R Criteria - ICV = 90 - 110%R, CCV = 80 - 120%R.

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE DRC-II

Method: 200.8

Analysis Name: ICPMS Diss. Metals-2010

Sequence: 1010053

Work Order: C101004

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Antimony	50.0	50.0	100.0	1			2			3		
				50.0	47.0	94.0	50.0	47.1	94.2			
				4			5			6		
				7			8			9		
				1			2			3		
				50.0	47.8	95.6	50.0	48.1	96.2			
				4			5			6		
Arsenic	50.0	51.7	103.4	7			8			9		
				1			2			3		
				50.0	47.4	94.8	50.0	48.6	97.2			
				4			5			6		
				7			8			9		
				1			2			3		
Cadmium	50.0	49.6	99.2	50.0	47.4	94.8	50.0	48.6	97.2			
				4			5			6		
				7			8			9		
				1			2			3		
				50.0	48.5	97.0	50.0	49.9	99.8			
				4			5			6		
Chromium	50.0	50.5	101.0	7			8			9		
				1			2			3		
				50.0	48.5	97.0	50.0	49.9	99.8			
				4			5			6		
				7			8			9		
				1			2			3		
Cobalt	50.0	50.4	100.8	50.0	49.6	99.2	50.0	49.0	98.0			
				4			5			6		
				7			8			9		
				1			2			3		
				50.0	49.6	99.2	50.0	49.0	98.0			
				4			5			6		
Lead	50.0	50.1	100.2	7			8			9		
				1			2			3		
				50.0	48.3	96.6	50.0	48.7	97.4			
				4			5			6		
				7			8			9		
				1			2			3		

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE DRC-II

Method: 200.8

Analysis Name: ICPMS Diss. Metals-2010

Sequence: 1010053

Work Order: C101004

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Molybdenum	50.0	48.8	97.6	1			2			3		
				50.0	47.8	95.6	50.0	48.0	96.0			
				4			5			6		
				7			8			9		
				1			2			3		
				50.0	49.7	99.4	50.0	50.3	100.6			
				4			5			6		
Nickel	50.0	51.3	102.6	7			8			9		
				1			2			3		
				50.0	50.3	100.6						
				4			5			6		
				7			8			9		
				1			2			3		
Selenium	250	258	103.2	50.0	49.8	99.6	50.0	50.5	101.0			
				4			5			6		
				7			8			9		
				1			2			3		
				50.0	48.4	96.8	50.0	48.4	96.8			
				4			5			6		
Silver	50.0	51.8	103.6	7			8			9		
				1			2			3		
				50.0	48.4	96.8	50.0	48.4	96.8			
				4			5			6		
				7			8			9		
				1			2			3		
Vanadium	50.0	50.1	100.2	50.0	49.4	98.8	50.0	48.9	97.8			
				4			5			6		
				7			8			9		
				1			2			3		
				50.0	48.9	97.8						
				4			5			6		

Metals - ICV & CCV %R Criteria = 90 - 110%, Classical Chemistry %R Criteria - ICV = 90 - 110%R, CCV = 80 - 120%R.

TechLaw, Inc. - ESAT Region 8
ICP Interference Check Sample
ICPMS-PE DRC-II

<u>Analyte</u>	<u>Check Sample</u>	<u>Result*</u>	<u>Units</u>	<u>True</u>	<u>%R</u>	<u>PQL</u>
Sequence: 1010053	Analysis: ICPMS Diss. Metals-2010					
Antimony	IFA1	0.0	ug/L			1.00
	IFB1	0.0	ug/L			1.00
Arsenic	IFA1	0.0	ug/L			2.00
	IFB1	19.6	ug/L	20	98	2.00
Cadmium	IFA1	0.0	ug/L			0.200
	IFB1	19.4	ug/L	20	97	0.200
Chromium	IFA1	0.2	ug/L			1.00
	IFB1	20.6	ug/L	20	103	1.00
Cobalt	IFA1	0.0	ug/L			0.200
	IFB1	19.9	ug/L	20	100	0.200
Lead	IFA1	0.1	ug/L			0.200
	IFB1	0.0	ug/L			0.200
Molybdenum	IFA1	193.2	ug/L	200	97	0.200
	IFB1	193.8	ug/L	200	97	0.200
Nickel	IFA1	0.0	ug/L			1.00
	IFB1	20.2	ug/L	20	101	1.00
Selenium	IFA1	0.1	ug/L			1.00
	IFB1	0.0	ug/L			1.00
Silver	IFA1	0.0	ug/L			0.500
	IFB1	19.4	ug/L	20	97	0.500
Vanadium	IFA1	-0.1	ug/L			2.00
	IFB1	-0.4	ug/L			2.00

*Criteria = 80-120%R of True Value or +/- PQL

See raw data for complete analyte list and results.

TechLaw, Inc. - ESAT Region 8
ICP Interference Check Sample
ICPOE - PE Optima

<u>Analyte</u>	<u>Check Sample</u>	<u>Result*</u>	<u>Units</u>	<u>True</u>	<u>%R</u>	<u>PQL</u>
Sequence: 1010051	Analysis: ICPOE Diss. Metals-2010					
Aluminum	IFA1	60,955.7	ug/L	60,000	102	50.0
	IFB1	61,851.8	ug/L	60,000	103	50.0
Barium	IFA1	-2.0	ug/L			5.00
	IFB1	293.0	ug/L	300	98	5.00
Beryllium	IFA1	-0.8	ug/L			5.00
	IFB1	96.6	ug/L	100	97	5.00
Calcium	IFA1	293,719.7	ug/L	300,000	98	250
	IFB1	294,073.9	ug/L	300,000	98	250
Copper	IFA1	-1.6	ug/L			2.00
	IFB1	312.0	ug/L	300	104	2.00
Iron	IFA1	233,339.6	ug/L	250,000	93	250
	IFB1	235,792.9	ug/L	250,000	94	250
Magnesium	IFA1	142,174.5	ug/L	150,000	95	250
	IFB1	143,685.3	ug/L	150,000	96	250
Manganese	IFA1	1.4	ug/L			5.00
	IFB1	197.1	ug/L	200	99	5.00
Potassium	IFA1	-92.7	ug/L			1000
	IFB1	20,654.2	ug/L	20,000	103	1000
Sodium	IFA1	50,802.5	ug/L	50,000	102	500
	IFB1	51,182.8	ug/L	50,000	102	500
Strontium	IFA1	2.8	ug/L			10.0
	IFB1	1,022.6	ug/L	1,000	102	10.0
Thallium	IFA1	7.9	ug/L			50.0
	IFB1	1,004.9	ug/L	1,000	100	50.0
Titanium	IFA1	0.4	ug/L			20.0
	IFB1	1,038.0	ug/L	1,000	104	20.0
Zinc	IFA1	-0.3	ug/L			20.0
	IFB1	278.5	ug/L	300	93	20.0

*Criteria = 80-120%R of True Value or +/- PQL

See raw data for complete analyte list and results.

TechLaw, Inc. - ESAT Region 8
Detection Limit (PQL) Standard
ICPMS-PE DRC-II

Metals (Dissolved) by EPA 200/7000 Series Methods

Sequence: 1010053

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%R</u>	<u>Units</u>
Antimony	1.00	1.00	100	ug/L
Arsenic	2.00	2.15	107	ug/L
Cadmium	0.200	0.211	106	ug/L
Chromium	1.00	0.957	96	ug/L
Cobalt	0.200	0.197	99	ug/L
Lead	0.200	0.190	95	ug/L
Molybdenum	0.200	0.209	104	ug/L
Nickel	1.00	1.00	100	ug/L
Selenium	1.00	1.09	109	ug/L
Silver	0.500	0.519	104	ug/L
Vanadium	2.00	2.00	100	ug/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

TDF #: DG-214

TechLaw, Inc. - ESAT Region 8
Detection Limit (PQL) Standard
ICPOE - PE Optima

Metals (Dissolved) by EPA 200/7000 Series Methods

Sequence: 1010051

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%R</u>	<u>Units</u>
Aluminum	100	98.91	99	ug/L
Barium	10.0	10.23	102	ug/L
Beryllium	5.00	5.113	102	ug/L
Calcium	250	251.6	101	ug/L
Copper	10.0	9.654	97	ug/L
Iron	100	85.21	85	ug/L
Magnesium	1000	1046	105	ug/L
Manganese	10.0	10.31	103	ug/L
Potassium	1000	1052	105	ug/L
Sodium	1000	1048	105	ug/L
Strontium	10.0	10.36	104	ug/L
Thallium	50.0	56.21	112	ug/L
Titanium	50.0	50.95	102	ug/L
Zinc	50.0	53.91	108	ug/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

Project Name: Upper Animas - Rush Water - Oct 2010

Certificate of Analysis

TDF #: DG-214

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 200.7

Dissolved

Sequence ID#: 1010051

Instrument ID #: ICPOE - PE Optima

Water

LSR #: DG-214

Analysis ID	Sample Name	Analysis Date	Analysis Time
1010051-ICV1	Initial Cal Check	10/11/10	12:40
1010051-ICB1	Initial Cal Blank	10/11/10	12:44
1010051-CRL1	Instrument RL Check	10/11/10	12:47
1010051-IFA1	Interference Check A	10/11/10	12:49
1010051-IFB1	Interference Check B	10/11/10	12:53
1010051-CCV1	Calibration Check	10/11/10	12:57
1010051-CCB1	Calibration Blank	10/11/10	13:00
1010050-BLK1	Blank	10/11/10	13:03
1010050-BS1		10/11/10	13:06
C101004-01	UASW001	10/11/10	13:10
1010050-DUP1	Duplicate	10/11/10	13:13
1010051-SRD1	Serial Dilution	10/11/10	13:16
1010050-MS1	Matrix Spike	10/11/10	13:19
1010050-MSD1	Matrix Spike Dup	10/11/10	13:22
C101004-02	UASW001	10/11/10	13:26
C101004-03	UASW002	10/11/10	13:29
C101004-04	UASW003	10/11/10	13:32
1010051-CCV2	Calibration Check	10/11/10	13:35
1010051-CCB2	Calibration Blank	10/11/10	13:38

Project Name: Upper Animas - Rush Water - Oct 2010

Certificate of Analysis

TDF #: DG-214

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 200.8

Dissolved

Sequence ID#: 1010053

Instrument ID #: ICPMS-PE DRC-II

Water

LSR #: DG-214

Analysis ID	Sample Name	Analysis Date	Analysis Time
1010053-ICV1	Initial Cal Check	10/12/10	08:45
1010053-ICB1	Initial Cal Blank	10/12/10	08:48
1010053-CRL1	Instrument RL Check	10/12/10	08:51
1010053-IFA1	Interference Check A	10/12/10	08:55
1010053-IFB1	Interference Check B	10/12/10	08:58
1010053-CCV1	Calibration Check	10/12/10	09:01
1010053-CCB1	Calibration Blank	10/12/10	09:04
1010052-BLK1	Blank	10/12/10	09:07
1010052-BS1		10/12/10	09:09
C101004-01	UASW001	10/12/10	09:12
1010052-DUP1	Duplicate	10/12/10	09:15
1010053-SRD1	Serial Dilution	10/12/10	09:18
1010052-MS1	Matrix Spike	10/12/10	09:21
1010052-MSD1	Matrix Spike Dup	10/12/10	09:23
C101004-02	UASW001	10/12/10	09:26
C101004-03	UASW002	10/12/10	09:29
C101004-04	UASW003	10/12/10	09:32
1010053-CCV2	Calibration Check	10/12/10	09:35
1010053-CCB2	Calibration Blank	10/12/10	09:38

Project Name: Upper Animas - Rush Water - Oct 2010

TDF #: DG-214

Certificate of Analysis

START, Denver, CO

EPA Contract Number: EP-W-05-050

CHAIN OF CUSTODY RECORD

Site #: 085M

Contact Name: Andrew Longworth

Contact Phone: 720 810 0780

C101604

No: 085M-10/11/10-0001

Cooler #: 1

Lab: ESAT EPA Region 8 Lab

Lab Phone: 3033127700

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container	Preservative	MS/MSD
	UASE001_0810201 0	UASE001	metals - 200.7	Sediment	10/8/2010	1	250ml Poly	4 C	N
	UASE001D_081020 10	UASE001	metals - 200.7	Sediment	10/8/2010	3	250ml Poly	4 C	Y
	UASE002_0810201 0	UASE002	metals - 200.7	Sediment	10/8/2010	1	250ml Poly	4 C	N
	UASE003_0810201 0	UASE003	metals - 200.7	Sediment	10/8/2010	1	250ml Poly	4 C	N
	UASW001_0810201 0	UASW001	metals - 200.8	Water	10/8/2010	1	1 L poly	HNO3 pH<2	N
	UASW001D_081020 10	UASW001	metals - 200.8	Water	10/8/2010	3	1 L poly	HNO3 pH<2	Y
	UASW002_0810201 0	UASW002	metals - 200.8	Water	10/8/2010	1	1 L poly	HNO3 pH<2	N
	UASW003_0810201 0	UASW003	metals - 200.8	Water	10/8/2010	1	1 L poly	HNO3 pH<2	N

Special Instructions: TDF = DG-214 Turn Around Time = 5 days	SAMPLES TRANSFERRED FROM	
	CHAIN OF CUSTODY #	

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
Delivery <i>AB</i>	<i>AB</i>	10/11/10	<i>AB</i>	10/11/10	1130						

theater

C101003 / C101004

ESAT Technical Direction Form

Contract No. EPW06033

EPA Region 8

Site ID: 085M
TDF ID: DG-214

Date Issued: 10/7/2010
Date Updated:

Date
Closed By:

Name: Upper Animas Mining District Samples

Details: The Contractor shall analyze 3 water and 3 soil samples collected from the Upper Animas Mining District Superfund site beginning 10/8/10. The water samples will be analyzed for TR metals by 200.8 and the sediment samples will be analyzed for TR metals by 200.7 as indicated in the analytical information section below. The samples will be collected by START and delivered to the ESAT R8 Laboratory on 10/11/10.

Email data package and EDD to the TOPO and Kent Alexander at UOS START (Kent_Alexander@urscorp.com).

Analytical

MATRIX

Water Soils Vegetation Biota

WET CHEM

TSS TDS DOC Alk Chloride Sulfate Fluoride Nitrate Nitrite

Other

METALS

Dissolved Total Recoverable Total Hardness (Calc)
200.7: Ag Al As Ba Be B Ca Cd Co Cr Cu Fe K Mg
 Mn Mo Na Ni Pb Sb Se Sr Ti Tl V Zn SiO₂
200.8: Ag Al As Ba Be Ca Cd Cr Cu Mn Mg Na Pb Sb
 Se Th Tl U V Zn

7470/7471/747 Hg

FIBERS

PLM TEM

Deliverable

ID	Description	Due Date	Submission Date
1	Provide final deliverable package via email to Task Monitor no later than 10/15/10.	10/15/2010	10/15/10.

START, Denver, CO

CHAIN OF CUSTODY RECORD

Site #: 085M

Contact Name: Andrew Longworth
Contact Phone: 720 810 0780

No: 085M-10/11/19-0001

Cooler #: 1

Lab: ESAT EPA Region 8 Lab
Lab Phone: 3033127700

Special Instructions: TDF = DG-214 Turn Around Time = 5 days	SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #
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U.S. Environmental Protection Agency
Region 8
Technical and Management Services

Laboratory Services Program

Certificate of Analysis

Ref: 8TMS-L

MEMORANDUM

Date: 10/13/10

Subject: Analytical Results--- **Upper Animas - Rush SED - Oct 2010 / DG-214**

From: Don Goodrich; EPA Region 8 Analytical Chemistry WAM

To: Kent Alexander
Superfund
1595 Wynkoop Street

Received Sample Set(s), [Work Order : Date Received]:

[C101003 : 10/11/2010]

Attached are the analytical results for the samples received from the Upper Animas - Rush SED - Oct 2010 sampling event, according to TDF DG-214. All analyses were performed within their method specified holding times unless otherwise noted in the following narrative.

These samples were prepared, analyzed, and verified by the Environmental Services Assistance Team Laboratory (ESAT) according to the requirements of the Technical Direction Form (TDF).

Note: The laboratory herewith transmits this deliverable to the program/project partner for determination of "final data usability" which may include data validation and data quality assessment per and in accordance with EPA QA/G-8, *Guidance on Environmental Data Verification and Data Validation*, November 2002, EPA/240/R-02/004. Laboratory data qualifiers are applied based on the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, October 2004, referred to as "NFGI".

Case Narrative**C101003**

Quality Assessment: Unless indicated by exception, the QA/QC associated with this sample set produced data within the TDF-specified criteria.

Holding Times: All samples were analyzed within their method-specified technical holding time(s).

1. Initial and Continuing calibration blanks (ICBs and CCBs).
Exceptions: None.
2. Preparation (PB) / Method blanks (MB)
Exceptions: In ICP-MS batch 1010049, cadmium was detected in the prep blank at a level less than twice the PQL. As a result, the reporting limit for cadmium was raised from 20 ug/kg to 30 ug/kg. No qualifiers were assigned.
3. Interference Checks (ICSA / ICSAB) for ICP-MS and ICP-OE analyses only.
Exceptions: None.
4. Initial and Continuing calibration verification analyses (ICVs and CCVs).
Exceptions: None.
5. Laboratory Control Sample (LCS) or second source analysis or SRM.
Exceptions: None.
6. Laboratory Fortified blank (LFB) / Blank spike (BS), same source as used for the matrix spikes.
PBS performed with analyses/methods requiring preparation or digestion prior to analysis.
Exceptions: None.
7. Contract Reporting Detection Limit Standard, labeled as CRA, CRDL or CRL.
Exceptions: None.
8. Laboratory Duplicate (DUP). "Source" identifies field sample duplicated in the laboratory. If either the "source" or the duplicate result is <5X the reporting limit, the %D limit of 20% does not apply.
Exceptions: None.
9. Laboratory Matrix Spike (MS) and spike duplicate (MSD). "Source" defines original field sample fortified prior to analysis. Percent recovery (%R) limits do not apply when sample concentration(s) exceed the corresponding analyte spike level by a factor of 4 or greater.
Exceptions: In ICP-MS batch 1010049, antimony recovered low in the MS and MSD. In ICP-OE batch 1010049, sodium recovered low in the MS and MSD. Since all other QC requirements for antimony and sodium were met, no qualifiers were assigned.
10. Serial Dilution sample analysis (SRD). "Source" is parent field sample diluted 1:5 in the laboratory.
Performed for ICP-OE and ICP-MS metals analyses. Percent difference (%D) limits do not apply when analyte concentration(s) are below 50x the source sample's MDL (or 10x it's PQL).
Exceptions: None.
11. Internal standards, criteria specified for ICP-MS analyses only, monitored at the instrument.
Exceptions: None.
12. Any calibration using more than two-points produced a correlation coefficient equal to or greater than 0.995.
Exceptions: None.

Acronyms and Definitions:

ESAT	Environmental Services Assistance Team
J	Data Estimated qualifier (also applied to all data less than PQL, greater than or equal to MDL)
MDL	Method Detection Limit
PQL	Practical Quantitation Limit, also known as reporting limit.
RPD	Relative Percent Difference (difference divided by the mean)
%D	Percent difference, serial dilution criteria unit, difference divided by the original result.
%R	Percent recovery, analyzed (less sample contribution) divided by true value
<	Analyte NOT DETECTED at or above the Method Detection Limit (MDL)
mg/L	Parts per million (milligrams per liter). Solids equivalent = mg/Kg.
ug/L	Parts per billion (micrograms per liter). Solids equivalent = ug/Kg.
NR	No Recovery (matrix spike) - Often seen for calcium/magnesium when their concentration exceeds the spike level by >4x.
NFGI	USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004
RE	Sample Re-analysis. Usually seen on raw data and sequences for required sample dilutions due to over-range analytes.

Method(s) Summary:

As defined in the Technical Direction Form (TDF), some or all of the methods listed below were used for the determination of the reported target analytes.

From EPA's *Methods for the Determination of Metals in Environmental Samples*, Supplement I, May 1994, dissolved, total, and/or total recoverable metals were determined by:

- Method 200.7 / 6010B using a PE Optima ICP-OE (ICP).
- Method 200.8 / 6020 using a Perkin -Elmer Elan 6000 ICP-MS.
- Method 200.2 for total recoverable metals (only) digestion.
- Method 245.1 using a Perkin -Elmer FIMS CV AA (aqueous mercury only).

From *Standard Methods for the Examination of Water and Wastewater*, 18th Edition, 1992, Method 2340B was used for the calculated hardness determination. Hardness is reported as mg(milligram) equivalent CaCO₃ per liter (L) determined as follows:

$$\text{Calculated hardness} = 2.497 * (\text{Calcium, mg/L}) + 4.118 * (\text{Magnesium, mg/L}).$$

From EPA's *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, SW -846,

- Method 3015A was used for microwave assisted total metals digestion.
- Method 7473 was used for mercury in solids.

From EPA's *Determination of Inorganic Anions by Ion Chromatography*, Revision 2.1, 1993, Method 300.0 was used to determine the anions.

From EPA's *Methods for Chemical Analysis of Water and Wastes*, March 1983:

- Method 310.1 was followed for the alkalinity determination.
- Method 160.1 was followed for gravimetric total dissolved solids (TDS) determination.
- Method 160.2 was used for gravimetric total suspended solids (TSS) determination.
- Method 415.3 was used for total organic carbon (TOC) determination using either an Apollo 9000 or Phoenix 8000 Non-Dispersive IR (NDIR) system. Also known as dissolved organic carbon (DOC) when performed on the dissolved sample fraction.

The quality control procedures listed in the TDF request were utilized by ESAT to verify accuracy of the results and to evaluate any matrix interferences.

Project Name: Upper Animas - Rush SED - Oct 2010

Certificate of Analysis

TDF #: DG-214

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	UASE001D	Date / Time Sampled:	10/08/10 00:00	Workorder:	C101003
EPA Tag No.:		Matrix:	Sediment	Lab Number:	C101003-01 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	4230		ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Arsenic	45400		ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Cadmium	990		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Chromium	3500		ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Cobalt	5360		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Lead	460000		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Molybdenum	4660		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Nickel	2840		ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Selenium	2530		ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Silver	2570		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Thallium	< 997	U	ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Vanadium	19000		ug/kg dry wt	997	10	10/13/2010	SV	1010049
EPA 200.2/200.7	Aluminum	8250		mg/kg dry wt	9.97	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Barium	215		mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Beryllium	< 2.49	U	mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Calcium	1550		mg/kg dry wt	49.9	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Copper	116		mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Iron	58400		mg/kg dry wt	49.9	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Magnesium	2630		mg/kg dry wt	49.9	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Manganese	801		mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Potassium	1220		mg/kg dry wt	125	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Sodium	< 249	U	mg/kg dry wt	125	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Strontium	83.6		mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Titanium	23.8		mg/kg dry wt	2.49	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Zinc	339		mg/kg dry wt	4.99	5	10/12/2010	SW	1010049

Project Name: Upper Animas - Rush SED - Oct 2010

Certificate of Analysis

TDF #: DG-214

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASE002	Date / Time Sampled: 10/08/10 00:00	Workorder: C101003
EPA Tag No.:	Matrix: Sediment	Lab Number: C101003-02 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	5800		ug/kg dry wt	500	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Arsenic	49600		ug/kg dry wt	500	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Cadmium	674		ug/kg dry wt	99.9	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Chromium	2890		ug/kg dry wt	500	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Cobalt	2600		ug/kg dry wt	99.9	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Lead	382000		ug/kg dry wt	99.9	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Molybdenum	3410		ug/kg dry wt	99.9	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Nickel	2230		ug/kg dry wt	500	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Selenium	2760		ug/kg dry wt	500	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Silver	2820		ug/kg dry wt	99.9	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Thallium	1170		ug/kg dry wt	500	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Vanadium	18300		ug/kg dry wt	999	10	10/13/2010	SV	1010049
EPA 200.2/200.7	Aluminum	5420		mg/kg dry wt	9.99	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Barium	326		mg/kg dry wt	0.999	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Beryllium	< 2.50	U	mg/kg dry wt	0.999	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Calcium	863		mg/kg dry wt	50.0	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Copper	39.5		mg/kg dry wt	0.999	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Iron	46900		mg/kg dry wt	50.0	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Magnesium	2220		mg/kg dry wt	50.0	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Manganese	235		mg/kg dry wt	0.999	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Potassium	1380		mg/kg dry wt	125	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Sodium	< 250	U	mg/kg dry wt	125	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Strontium	90.9		mg/kg dry wt	0.999	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Titanium	17.5		mg/kg dry wt	2.50	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Zinc	199		mg/kg dry wt	5.00	5	10/12/2010	SW	1010049

Project Name: Upper Animas - Rush SED - Oct 2010

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TDF #: DG-214

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASE003	Date / Time Sampled: 10/08/10 00:00	Workorder: C101003
EPA Tag No.:	Matrix: Sediment	Lab Number: C101003-03 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	1190		ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Arsenic	19800		ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Cadmium	8840		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Chromium	4120		ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Cobalt	11500		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Lead	882000		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Molybdenum	7200		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Nickel	7950		ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Selenium	877	J	ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Silver	5080		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Thallium	503	J	ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Vanadium	18000		ug/kg dry wt	997	10	10/13/2010	SV	1010049
EPA 200.2/200.7	Aluminum	9830		mg/kg dry wt	9.97	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Barium	128		mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Beryllium	1.58	J	mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Calcium	3420		mg/kg dry wt	49.9	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Copper	203		mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Iron	24800		mg/kg dry wt	49.9	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Magnesium	5520		mg/kg dry wt	49.9	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Manganese	8730		mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Potassium	750		mg/kg dry wt	125	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Sodium	< 249	U	mg/kg dry wt	125	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Strontium	44.9		mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Titanium	62.7		mg/kg dry wt	2.49	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Zinc	2400		mg/kg dry wt	4.99	5	10/12/2010	SW	1010049

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Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	UASE001	Date / Time Sampled:	10/08/10 00:00	Workorder:	C101003
EPA Tag No.:		Matrix:	Sediment	Lab Number:	C101003-04 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	5410		ug/kg dry wt	494	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Arsenic	52900		ug/kg dry wt	494	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Cadmium	829		ug/kg dry wt	98.8	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Chromium	3490		ug/kg dry wt	494	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Cobalt	4590		ug/kg dry wt	98.8	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Lead	531000		ug/kg dry wt	98.8	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Molybdenum	5560		ug/kg dry wt	98.8	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Nickel	2830		ug/kg dry wt	494	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Selenium	2980		ug/kg dry wt	494	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Silver	3790		ug/kg dry wt	98.8	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Thallium	643	J	ug/kg dry wt	494	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Vanadium	19300		ug/kg dry wt	988	10	10/13/2010	SV	1010049
EPA 200.2/200.7	Aluminum	9450		mg/kg dry wt	9.88	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Barium	261		mg/kg dry wt	0.988	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Beryllium	< 2.47	U	mg/kg dry wt	0.988	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Calcium	1620		mg/kg dry wt	49.4	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Copper	158		mg/kg dry wt	0.988	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Iron	63100		mg/kg dry wt	49.4	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Magnesium	2490		mg/kg dry wt	49.4	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Manganese	602		mg/kg dry wt	0.988	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Potassium	1330		mg/kg dry wt	124	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Sodium	< 247	U	mg/kg dry wt	124	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Strontium	91.8		mg/kg dry wt	0.988	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Titanium	20.1		mg/kg dry wt	2.47	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Zinc	364		mg/kg dry wt	4.94	5	10/12/2010	SW	1010049

"J" Qualifier indicates an estimated value

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Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
ICPMS-PE DRC-II									
Batch 1010049 - 200.2 - TR Metals									
ICPMS-PE DRC-II									
Method Blank (1010049-BLK2)		Solid (dry wt basis)						Prepared: 10/12/10 Analyzed: 10/13/10	
Vanadium	< 500	1000	ug/kg dry wt						
Chromium	< 250	500	"						
Cobalt	< 50.0	100	"						
Nickel	< 250	500	"						
Arsenic	< 250	1000	"						
Selenium	< 250	500	"						
Molybdenum	< 50.0	100	"						
Silver	69.1	250	"						
Cadmium	103.2	150	"						
Antimony	< 250	500	"						
Thallium	< 250	500	"						
Lead	< 50.0	100	"						
Duplicate (1010049-DUP2)		Dilution Factor: 1	Source: C101003-01			Prepared: 10/12/10 Analyzed: 10/13/10			
Vanadium	19900	1980	ug/kg dry wt		19040		4	35	
Chromium	3557	992	"		3496		2	35	
Cobalt	5407	198	"		5360		0.9	35	
Nickel	3596	992	"		2840		24	35	
Arsenic	46310	1980	"		45370		2	35	
Selenium	2284	992	"		2530		10	35	
Molybdenum	4667	198	"		4659		0.2	35	
Silver	2532	496	"		2570		1	35	
Cadmium	840.3	298	"		989.8		16	35	
Antimony	5170	992	"		4233		20	35	
Thallium	< 496	992	"		< 496			35	
Lead	423100	198	"		459700		8	35	
Matrix Spike (1010049-MS2)		Dilution Factor: 1	Source: C101003-01			Prepared: 10/12/10 Analyzed: 10/13/10			
Vanadium	45720	1970	ug/kg dry wt	29600	19040	90	65-135		
Chromium	39030	985	"	39400	3496	90	65-135		
Cobalt	22800	197	"	19700	5360	89	65-120		
Nickel	46890	985	"	49300	2840	89	65-135		
Arsenic	122600	1970	"	78800	45370	98	65-135		
Selenium	193600	985	"	197000	2530	97	65-135		
Molybdenum	41510	197	"	39400	4659	93	65-135		
Silver	9893	493	"	7390	2570	99	65-135		
Cadmium	20900	296	"	19700	989.8	101	65-135		
Antimony	44070	985	"	78800	4233	51	65-135		
Thallium	198000	985	"	197000	< 493	100	65-135		

Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 1010049 - 200.2 - TR Metals		<i>Solid (dry wt basis)</i>							ICPMS-PE DRC-II
Matrix Spike (1010049-MS2)		Dilution Factor: 1		Source: C101003-01			Prepared: 10/12/10 Analyzed: 10/13/10		
Lead	528700	197	ug/kg dry wt	98500	459700	70	65-135		
Matrix Spike Dup (1010049-MSD2)		Dilution Factor: 1		Source: C101003-01			Prepared: 10/12/10 Analyzed: 10/13/10		
Vanadium	45850	2000	ug/kg dry wt	30000	19040	89	65-135	0.3	35
Chromium	39360	999	"	39900	3496	90	65-135	0.9	35
Cobalt	23090	200	"	20000	5360	89	65-120	1	35
Nickel	46790	999	"	49900	2840	88	65-135	0.2	35
Arsenic	125300	2000	"	79900	45370	100	65-135	2	35
Selenium	201100	999	"	200000	2530	99	65-135	4	35
Molybdenum	41610	200	"	39900	4659	93	65-135	0.2	35
Silver	9894	499	"	7490	2570	98	65-135	0.004	35
Cadmium	20820	300	"	20000	989.8	99	65-135	0.4	35
Antimony	45730	999	"	79900	4233	52	65-135	4	35
Thallium	196700	999	"	200000	< 499	98	65-135	0.6	35
Lead	532100	200	"	99900	459700	72	65-135	0.6	35
Post Spike (1010049-PS2)		Dilution Factor: 1		Source: C101003-01			Prepared: 10/12/10 Analyzed: 10/13/10		
Vanadium	276.0		ug/L	100	190.9	85	80-120		
Chromium	123.8		"	100	35.1	89	80-120		
Cobalt	138.9		"	100	53.7	85	80-120		
Nickel	114.5		"	100	28.5	86	80-120		
Arsenic	550.0		"	100	454.9	95	80-120		
Selenium	511.3		"	500	25.4	97	80-120		
Molybdenum	138.7		"	100	46.7	92	80-120		
Silver	119.0		"	100	25.8	93	80-120		
Cadmium	104.5		"	100	9.9	95	80-120		
Antimony	147.9		"	100	42.4	105	80-120		
Thallium	109.1		"	100	4.5	105	80-120		
Lead	4622		"	100	4609	13	80-120		

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Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 1010049 - 200.2 - TR Metals		<i>Solid (dry wt basis)</i>							ICPMS-PE DRC-II
Reference (1010049-SRM2)		Dilution Factor: 1							Prepared: 10/12/10 Analyzed: 10/13/10
Vanadium	64520	4000	ug/kg dry wt	65800		98	80-120		
Chromium	99400	2000	"	96500		103	80-120		
Cobalt	140500	400	"	140000		100	80-120		
Nickel	55090	2000	"	56800		97	76.5-123.4		
Arsenic	976900	4000	"	930000		105	65-134		
Selenium	41520	2000	"	37000		112	48-152		
Silver	22240	1000	"	20900		106	64-136		
Cadmium	42980	600	"	41600		103	77-123		
Antimony	267200	2000	"	213000		125	61-139		
Thallium	34930	2000	"	38100		92	80-120		
Lead	223100	400	"	224000		100	75-125		
Batch 1010057 - 1010049		<i>Solid (dry wt basis)</i>							ICPMS-PE DRC-II
Serial Dilution (1010057-SRD1)		Dilution Factor: 5							Prepared: 10/12/10 Analyzed: 10/13/10
Vanadium	20400	4990	ug/kg dry wt	19040		7	10		
Chromium	3732	4990	"	3496		7	10		
Cobalt	5770	4990	"	5360		7	10		
Nickel	3203	4990	"	2840		12	10		
Arsenic	49520	9970	"	45370		9	10		
Selenium	2568	4990	"	2530		1	10		
Molybdenum	4596	4990	"	4659		1	10		
Silver	2563	4990	"	2570		0.3	10		
Cadmium	950.1	1500	"	989.8		4	10		
Antimony	4284	4990	"	4233		1	10		
Thallium	<2490	4990	"	<498.00					
Lead	474800	4990	"	459700		3	10		

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Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
ICPOE - PE Optima									
Batch 1010049 - 200.2 - TR Metals		<i>Solid (dry wt basis)</i>							ICPOE - PE Optima
Method Blank (1010049-BLK1)		Dilution Factor: 5							Prepared & Analyzed: 10/12/10
Aluminum	< 10.0	25.0	mg/kg dry wt						
Barium	< 1.00	2.50	"						
Beryllium	< 1.00	2.50	"						
Calcium	< 50.0	125	"						
Copper	< 1.00	5.00	"						
Iron	< 50.0	125	"						
Potassium	< 125	500	"						
Magnesium	< 50.0	125	"						
Manganese	< 1.00	2.50	"						
Sodium	< 125	250	"						
Zinc	< 5.00	10.0	"						
Strontium	< 1.00	5.00	"						
Titanium	< 2.50	5.00	"						
Duplicate (1010049-DUP1)		Dilution Factor: 5							Prepared & Analyzed: 10/12/10
Aluminum	8525.6	24.8	mg/kg dry wt		8246.5			3	35
Barium	220.37	2.48	"		214.74			3	35
Beryllium	< 0.992	2.48	"		< 0.992				35
Calcium	1628.1	124	"		1547.7			5	35
Copper	117.70	4.96	"		116.09			1	35
Iron	59813	124	"		58361			2	35
Potassium	1220.5	496	"		1216.1			0.4	35
Magnesium	2801.3	124	"		2629.6			6	35
Manganese	713.07	2.48	"		801.48			12	35
Sodium	< 124	248	"		< 124				35
Zinc	324.03	9.92	"		338.86			4	35
Strontium	84.832	4.96	"		83.595			1	35
Titanium	24.596	4.96	"		23.806			3	35

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Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

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Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 1010049 - 200.2 - TR Metals									
<i>Solid (dry wt basis)</i>									
Matrix Spike (1010049-MS1)									
		Dilution Factor: 5			Source: C101003-01			Prepared & Analyzed: 10/12/10	
Aluminum	8966.4	24.6	mg/kg dry wt	197	8246.5	365	65-135		
Barium	244.74	2.46	"	19.7	214.74	152	65-135		
Beryllium	21.304	2.46	"	19.7	< 0.985	108	65-135		
Calcium	1666.0	123	"	98.5	1547.7	120	65-135		
Copper	145.09	4.93	"	29.6	116.09	98	65-135		
Iron	59494	123	"	296	58361	383	65-135		
Potassium	2275.9	493	"	985	1216.1	108	65-135		
Magnesium	2864.5	123	"	197	2629.6	119	65-135		
Manganese	705.31	2.46	"	19.7	801.48	NR	65-135		
Sodium	401.89	246	"	296	< 123	136	65-135		
Zinc	357.95	9.85	"	19.7	338.86	97	65-135		
Strontium	107.05	4.93	"	19.7	83.595	119	65-135		
Titanium	36.923	4.93	"	19.7	23.806	67	65-135		
Matrix Spike Dup (1010049-MSD1)									
		Dilution Factor: 5			Source: C101003-01			Prepared & Analyzed: 10/12/10	
Aluminum	9324.2	25.0	mg/kg dry wt	200	8246.5	540	65-135	4	35
Barium	253.29	2.50	"	20.0	214.74	193	65-135	3	35
Beryllium	21.674	2.50	"	20.0	< 0.999	109	65-135	2	35
Calcium	1721.2	125	"	99.9	1547.7	174	65-135	3	35
Copper	147.89	4.99	"	30.0	116.09	106	65-135	2	35
Iron	61496	125	"	300	58361	NR	65-135	3	35
Potassium	2374.0	499	"	999	1216.1	116	65-135	4	35
Magnesium	2980.9	125	"	200	2629.6	176	65-135	4	35
Manganese	700.36	2.50	"	20.0	801.48	NR	65-135	0.7	35
Sodium	406.01	250	"	300	< 125	136	65-135	1	35
Zinc	346.67	9.99	"	20.0	338.86	39	65-135	3	35
Strontium	108.06	4.99	"	20.0	83.595	122	65-135	0.9	35
Titanium	38.037	4.99	"	20.0	23.806	71	65-135	3	35

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Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

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Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 1010049 - 200.2 - TR Metals									
<i>Solid (dry wt basis)</i>									
Post Spike (1010049-PS1)									
		Dilution Factor: 5			Source: C101003-01			Prepared & Analyzed: 10/12/10	
Aluminum	92206		ug/L	10100	82680	94	80-120		
Barium	2230.9		"	100	2152.9	78	80-120		
Beryllium	105.63		"	100	6.6954	99	80-120		
Calcium	25577		"	10100	15517	100	80-120		
Copper	1240.0		"	100	1163.9	76	80-120		
Iron	587230		"	10100	585130	21	80-120		
Potassium	22453		"	10100	12192	102	80-120		
Magnesium	36525		"	10100	26364	101	80-120		
Manganese	8051.4		"	100	8035.6	16	80-120		
Sodium	11311		"	10100	794.96	104	80-120		
Zinc	3482.7		"	100	3397.5	85	80-120		
Strontium	1340.7		"	500	838.12	101	80-120		
Titanium	23.639	4.99	mg/kg dry wt		23.806		80-120		
Reference (1010049-SRM1)									
		Dilution Factor: 5						Prepared & Analyzed: 10/12/10	
Aluminum	302.38	50.0	mg/kg dry wt	309		98	63-137		
Barium	2.9754	5.00	"	5.30		56	0-152		
Beryllium	18.635	5.00	"	18.8		99	82-118		
Calcium	180350	250	"	184000		98	78-122		
Copper	6415.5	10.0	"	6680		96	80-120		
Iron	22207	250	"	21000		106	80-120		
Potassium	< 250	1000	"	102			0-370		
Magnesium	106640	250	"	113000		94	80-120		
Manganese	205.11	5.00	"	201		102	80-120		
Sodium	< 250	500	"	92.8			0-299		
Zinc	171.18	20.0	"	175		98	73-127		

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Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 1010056 - 1010049		<i>Solid (dry wt basis)</i>							ICPOE - PE Optima
Serial Dilution (1010056-SRD1)		Dilution Factor: 2	Source: C101003-01			Prepared & Analyzed: 10/12/10			
Aluminum	8224.4	12.5	mg/kg dry wt		8246.5			0.3	10
Barium	216.61	12.5	"		214.74			0.9	10
Beryllium	< 4.99	12.5	"		< 1.00				10
Calcium	1555.3	12.5	"		1547.7			0.5	10
Copper	116.39	12.5	"		116.09			0.3	10
Iron	59388	12.5	"		58361			2	10
Potassium	1313.9	12.5	"		1216.1			8	10
Magnesium	2643.5	12.5	"		2629.6			0.5	10
Manganese	818.64	12.5	"		801.48			2	10
Sodium	148.69	12.5	"		< 1.00				10
Zinc	352.27	12.5	"		338.86			4	10
Strontium	84.842	12.5	"		83.595			1	10
Titanium	24.107	12.5	"		23.806			1	10

NOTE: %R = % Recovery, %R limits do not apply when sample levels exceed 4x the spike level.
 RPD = Relative Percent Difference, %D = % Difference, DL = Detection Limit for QC sample

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method:	<u>EPA 200.2/200.7</u>	Analysis Name:	<u>ICPOE Tot. Rec Metals-2010</u>
Instrument:	<u>ICPOE - PE Optima</u>	Work Order: Nu	<u>C101003</u>
Analytical Sequence:	<u>1010056</u> Total Recoverable	Concentration Units:	<u>mg/kg dry wt</u>

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)	PQL
Aluminum	-2.74	1	2	3	4	1010049-BLK1	NA
		-0.05	-0.59	0.58			
		5	6	7	8		
						-3.84	5.00
Barium	-0.06	1	2	3	4	1010049-BLK1	NA
		-0.02	0.02	0.00			
		5	6	7	8		
						0.15	0.50
Beryllium	0.03	1	2	3	4	1010049-BLK1	NA
		0.01	0.00	0.03			
		5	6	7	8		
						0.01	0.50
Calcium	-0.43	1	2	3	4	1010049-BLK1	NA
		2.54	0.72	1.63			
		5	6	7	8		
						11.50	25.00
Copper	0.09	1	2	3	4	1010049-BLK1	NA
		0.06	0.30	0.09			
		5	6	7	8		
						0.70	1.00
Iron	4.30	1	2	3	4	1010049-BLK1	NA
		21.88	24.52	28.88			
		5	6	7	8		
						24.38	25.00
Potassium	9.96	1	2	3	4	1010049-BLK1	NA
		24.19	50.32	21.53			
		5	6	7	8		
						28.17	100.00
Magnesium	-0.36	1	2	3	4	1010049-BLK1	NA
		0.51	0.51	0.66			
		5	6	7	8		
						1.27	25.00

Project Name: Upper Animas - Rush SED - Oct 2010

Certificate of Analysis

TDF #: DG-214

TechLaw Inc., ESAT Region 8

INORGANIC ANALYSES DATA SHEET

Initial and Continuing Calibration Blanks

Analytical Method: EPA 200.2/200.7Analysis Name: ICPOE Tot. Rec Metals-2010Instrument: ICPOE - PE OptimaWork Order: Nu C101003Analytical Sequence: 1010056 Total RecoverableConcentration Units: mg/kg dry wt

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL	
		1	2	3	4	1010049-BLK1	NA		
Manganese	0.00	1	2	3	4	1010049-BLK1	NA	0.50	
		0.04	0.04	0.11					
	5	5	6	7	8	0.06	NA		
Sodium	-1.54	1	2	3	4	1010049-BLK1	NA	50.00	
		4.54	-2.80	1.31					
	5	5	6	7	8	17.08	NA		
Zinc	1.73	1	2	3	4	1010049-BLK1	NA	2.00	
		0.64	0.54	0.59					
	5	5	6	7	8	1.79	NA		
Strontium	0.03	1	2	3	4	1010049-BLK1	NA	1.00	
		0.02	0.02	0.02					
	5	5	6	7	8	0.00	NA		
Titanium	0.76	1	2	3	4	1010049-BLK1	NA	1.00	
		0.39	0.34	0.33					
	5	5	6	7	8	0.18	NA		

Project Name: Upper Animas - Rush SED - Oct 2010

Certificate of Analysis

TDF #: DG-214

TechLaw Inc., ESAT Region 8

INORGANIC ANALYSES DATA SHEET

Initial and Continuing Calibration Blanks

Analytical Method: EPA 200.2 / 200.8Analysis Name: ICP-MS Tot. Rec. Metals-2010Instrument: ICPMS-PE DRC-IIWork Order: Nu C101003Analytical Sequence: 1010057 Total RecoverableConcentration Units: ug/kg dry wt

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)	PQL	
		1	2	3	4	NA		
Vanadium	0.01	0.00	0.00	-0.01		NA	200.00	
		5	6	7	8			
	0.00	1	2	3	4	NA		
		0.01	-0.03	0.00				
Chromium	0.00	5	6	7	8	NA	100.00	
		1	2	3	4			
	0.01	0.01	-0.03	0.00		NA		
		5	6	7	8			
Cobalt	0.01	1	2	3	4	NA	20.00	
		0.00	0.00	0.00				
	0.00	5	6	7	8	NA		
		1	2	3	4			
Nickel	0.00	0.01	0.01	0.01		NA	100.00	
		5	6	7	8			
	0.12	1	2	3	4	NA		
		0.06	0.13	0.12				
Arsenic	0.12	5	6	7	8	NA	200.00	
		1	2	3	4			
	0.12	0.18	0.18	0.07		NA		
		5	6	7	8			
Selenium	0.02	1	2	3	4	NA	100.00	
		0.05	0.01	0.00				
	0.07	5	6	7	8	NA		
		1	2	3	4			
Molybdenum	0.02	0.09	0.09	0.08		NA	20.00	
		5	6	7	8			
	0.07	1	2	3	4	NA		
		0.09	0.09	0.08				
Silver	0.07	5	6	7	8	NA	50.00	
		1	2	3	4			

Project Name: Upper Animas - Rush SED - Oct 2010

Certificate of Analysis

TDF #: DG-214

TechLaw Inc., ESAT Region 8

INORGANIC ANALYSES DATA SHEET

Initial and Continuing Calibration Blanks

Analytical Method: EPA 200.2 / 200.8Analysis Name: ICP-MS Tot. Rec. Metals-2010Instrument: ICPMS-PE DRC-IIWork Order: Nu C101003Analytical Sequence: 1010057 Total RecoverableConcentration Units: ug/kg dry wt

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL	
		1	2	3	4	NA	1010049-BLK2		
Cadmium	0.03	0.03	0.03	0.01		NA	0.21	30.00	
		5	6	7	8				
						NA	0.09		
Antimony	0.06	0.06	0.06	0.06		NA	1010049-BLK2	100.00	
		5	6	7	8				
						NA	0.09		
Thallium	0.02	0.01	0.15	0.06		NA	1010049-BLK2	100.00	
		5	6	7	8				
						NA	0.08		
Lead	0.02	0.01	0.05	0.07		NA	1010049-BLK2	20.00	
		5	6	7	8				
						NA	0.08		

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima

Method: EPA 200.2/200.7

Analysis Name: ICPOE Tot. Rec Metals-2010

Sequence: 1010056

Work Order: C101003

Units: mg/kg dry wt

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Aluminum	1000	1018.1	101.8	1			2			3		
				12500	13072	104.6	12500	12993	103.9	12500	12895	103.2
				4			5			6		
				7			8			9		
				1			2			3		
				500	512.86	102.6	500	511.33	102.3	500	506.29	101.3
				4			5			6		
Barium	1000	1016.5	101.7	7			8			9		
				1			2			3		
				500	516.73	103.3	500	514.36	102.9	500	511.31	102.3
				4			5			6		
				7			8			9		
				1			2			3		
Beryllium	1000	996.98	99.7	500	516.73	103.3	500	514.36	102.9	500	511.31	102.3
				4			5			6		
				7			8			9		
				1			2			3		
				12500	13100	104.8	12500	12973	103.8	12500	12872	103.0
				4			5			6		
Calcium	1000	957.13	95.7	7			8			9		
				1			2			3		
				12500	13100	104.8	12500	12973	103.8	12500	12872	103.0
				4			5			6		
				7			8			9		
				1			2			3		
Copper	1000	1000.8	100.1	1000	1017.7	101.8	1000	1006.2	100.6	1000	998.85	99.9
				4			5			6		
				7			8			9		
				1			2			3		
				12500	13237	105.9	12500	13080	104.6	12500	12984	103.9
				4			5			6		
Iron	1000	981.66	98.2	7			8			9		
				1			2			3		
				12500	13237	105.9	12500	13080	104.6	12500	12984	103.9
				4			5			6		

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima

Method: EPA 200.2/200.7

Analysis Name: ICPOE Tot. Rec Metals-2010

Sequence: 1010056

Work Order: C101003

Units: mg/kg dry wt

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Magnesium	1000	1029.5	103.0	1			2			3		
				12500	13228	105.8	12500	13123	105.0	12500	13024	104.2
				4			5			6		
				7			8			9		
				1			2			3		
				1000	1035.3	103.5	1000	1028.9	102.9	1000	1021.9	102.2
				4			5			6		
				7			8			9		
				1			2			3		
Potassium	5000	4965.9	99.3	25000	26048	104.2	25000	25901	103.6	25000	25744	103.0
				4			5			6		
				7			8			9		
				1			2			3		
				12500	12902	103.2	12500	12892	103.1	12500	12807	102.5
				4			5			6		
				7			8			9		
				1			2			3		
				500	516.02	103.2	500	516.02	103.2	500	513.33	102.7
Strontium	1000	1026.3	102.6	4			5			6		
				7			8			9		
				1			2			3		
				500	512.85	102.6	500	507.46	101.5	500	503.23	100.6
				4			5			6		
				7			8			9		
				1			2			3		
				500	512.85	102.6	500	507.46	101.5	500	503.23	100.6
				4			5			6		
Titanium	1000	1019.0	101.9	7			8			9		

Project Name: Upper Animas - Rush SED - Oct 2010

Certificate of Analysis

TDF #:

DG-214

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima

Method: EPA 200.2/200.7

Analysis Name: ICPOE Tot. Rec Metals-2010

Sequence: 1010056

Work Order: C101003

Units: mg/kg dry wt

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Zinc	1000	1001.4	100.1	1			2			3		
				2500	2610.4	104.4	2500	2607.4	104.3	2500	2589.2	103.6
				4			5			6		
				7			8			9		

Metals - ICV & CCV %R Criteria = 90 - 110%, Classical Chemistry %R Criteria - ICV = 90 - 110%R, CCV = 80 - 120%R.

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE DRC-II

Method: EPA 200.2 / 200.8

Analysis Name: ICP-MS Tot. Rec. Metals-2010

Sequence: 1010057

Work Order: C101003

Units: ug/kg dry wt

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)										
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R		
Antimony	50.0	49.5	99.0	1			2			3				
				50.0	47.4	94.8	50.0	47.0	94.0	50.0	48.2	96.4		
				4			5			6				
				7			8			9				
				1			2			3				
				50.0	49.5	99.0	50.0	49.6	99.2	50.0	50.8	101.6		
				4			5			6				
Arsenic	50.0	54.0	108.0	7			8			9				
				1			2			3				
				50.0	49.5	99.0	50.0	49.6	99.2	50.0	50.8	101.6		
				4			5			6				
				7			8			9				
				1			2			3				
Cadmium	50.0	49.7	99.4	50.0	49.4	98.8	50.0	48.2	96.4	50.0	49.4	98.8		
				4			5			6				
				7			8			9				
				1			2			3				
				50.0	48.9	97.8	50.0	48.7	97.4	50.0	48.6	97.2		
				4			5			6				
Chromium	50.0	49.5	99.0	7			8			9				
				1			2			3				
				50.0	48.9	97.8	50.0	48.7	97.4	50.0	48.6	97.2		
				4			5			6				
				7			8			9				
				1			2			3				
Cobalt	50.0	47.8	95.6	50.0	49.0	98.0	50.0	48.1	96.2	50.0	49.0	98.0		
				4			5			6				
				7			8			9				
				1			2			3				
				50.0	49.0	98.0	50.0	48.1	96.2	50.0	49.0	98.0		
				4			5			6				
Lead	50.0	51.4	102.8	50.0	51.2	102.4	50.0	51.0	102.0	50.0	51.6	103.2		
				4			5			6				
				7			8			9				
				1			2			3				
				50.0	51.2	102.4	50.0	51.0	102.0	50.0	51.6	103.2		
				4			5			6				

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE DRC-II

Method: EPA 200.2 / 200.8

Analysis Name: ICP-MS Tot. Rec. Metals-2010

Sequence: 1010057

Work Order: C101003

Units: ug/kg dry wt

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Molybdenum	50.0 47.4 94.8			1			2			3		
				50.0	48.9	97.8	50.0	47.0	94.0	50.0	48.9	97.8
				4			5			6		
				7			8			9		
				1			2			3		
				50.0	48.7	97.4	50.0	48.2	96.4	50.0	48.3	96.6
				4			5			6		
Nickel	50.0 49.1 98.2			1			2			3		
				50.0	48.7	97.4	50.0	48.2	96.4	50.0	48.3	96.6
				4			5			6		
				7			8			9		
				1			2			3		
				50.0	49.6	99.2	50.0	49.9	99.8	50.0	51.1	102.2
				4			5			6		
Selenium	250 253.0 101.2			7			8			9		
				1			2			3		
				50.0	49.6	99.2	50.0	49.9	99.8	50.0	51.1	102.2
				4			5			6		
				7			8			9		
				1			2			3		
Silver	50.0 50.9 101.8			50.0	48.1	96.2	50.0	48.1	96.2	50.0	48.1	96.2
				4			5			6		
				7			8			9		
				1			2			3		
				50.0	51.0	102.0	50.0	50.3	100.6	50.0	50.2	100.4
				4			5			6		
Thallium	50.0 51.0 102.0			7			8			9		
				1			2			3		
				50.0	51.0	102.0	50.0	50.3	100.6	50.0	50.2	100.4
				4			5			6		
				7			8			9		
				1			2			3		
Vanadium	50.0 48.7 97.4			50.0	48.5	97.0	50.0	48.4	96.8	50.0	48.2	96.4
				4			5			6		
				7			8			9		
				1			2			3		
				50.0	48.7	97.4	50.0	48.4	96.8	50.0	48.2	96.4
				4			5			6		

Metals - ICV & CCV %R Criteria = 90 - 110%, Classical Chemistry %R Criteria - ICV = 90 - 110%R, CCV = 80 - 120%R.

TechLaw, Inc. - ESAT Region 8
ICP Interference Check Sample
ICPMS-PE DRC-II

<u>Analyte</u>	<u>Check Sample</u>	<u>Result*</u>	<u>Units</u>	<u>True</u>	<u>%R</u>	<u>PQL</u>
Sequence: 1010057	Analysis: ICP-MS Tot. Rec. Metals-2010					
Antimony	IFA1	0.0	ug/L			1.0
	IFB1	0.0	ug/L			1.0
Arsenic	IFA1	0.1	ug/L			2.0
	IFB1	20.9	ug/L	20	104	2.0
Cadmium	IFA1	0.1	ug/L			0.2
	IFB1	20.1	ug/L	20	100	0.2
Chromium	IFA1	0.2	ug/L			1.0
	IFB1	20.6	ug/L	20	103	1.0
Cobalt	IFA1	0.0	ug/L			0.2
	IFB1	20.2	ug/L	20	101	0.2
Lead	IFA1	0.1	ug/L			0.2
	IFB1	0.1	ug/L			0.2
Molybdenum	IFA1	191.2	ug/L	200	96	0.2
	IFB1	202.4	ug/L	200	101	0.2
Nickel	IFA1	0.0	ug/L			1.0
	IFB1	20.1	ug/L	20	100	1.0
Selenium	IFA1	0.1	ug/L			1.0
	IFB1	0.2	ug/L			1.0
Silver	IFA1	0.0	ug/L			0.5
	IFB1	20.1	ug/L	20	100	0.5
Thallium	IFA1	0.0	ug/L			1.0
	IFB1	0.0	ug/L			1.0
Vanadium	IFA1	-0.1	ug/L			2.0
	IFB1	-0.4	ug/L			2.0

*Criteria = 80-120%R of True Value or +/- PQL

See raw data for complete analyte list and results.

TechLaw, Inc. - ESAT Region 8
ICP Interference Check Sample
ICPOE - PE Optima

Analyte	Check Sample	Result*	Units	True	%R	PQL
Sequence: 1010056	Analysis: ICPOE Tot. Rec Metals-2010					
Aluminum	IFA1	64,358.3	ug/L	60,000	107	50.0
	IFB1	64,096.6	ug/L	60,000	107	50.0
Barium	IFA1	-3.2	ug/L			5.00
	IFB1	294.9	ug/L	300	98	5.00
Beryllium	IFA1	-0.8	ug/L			5.00
	IFB1	97.0	ug/L	100	97	5.00
Calcium	IFA1	306,241.9	ug/L	300,000	102	250
	IFB1	306,878.5	ug/L	300,000	102	250
Copper	IFA1	-1.1	ug/L			10.0
	IFB1	309.5	ug/L	300	103	10.0
Iron	IFA1	241,875.2	ug/L	250,000	97	250
	IFB1	243,367.1	ug/L	250,000	97	250
Magnesium	IFA1	149,818.8	ug/L	150,000	100	250
	IFB1	150,792.1	ug/L	150,000	101	250
Manganese	IFA1	1.7	ug/L			5.00
	IFB1	198.3	ug/L	200	99	5.00
Potassium	IFA1	-81.5	ug/L			1000
	IFB1	21,313.2	ug/L	20,000	107	1000
Sodium	IFA1	53,101.9	ug/L	50,000	106	500
	IFB1	53,513.8	ug/L	50,000	107	500
Strontium	IFA1	2.8	ug/L			10.0
	IFB1	1,017.6	ug/L	1,000	102	10.0
Titanium	IFA1	0.5	ug/L			10.0
	IFB1	1,042.9	ug/L	1,000	104	10.0
Zinc	IFA1	3.8	ug/L			20.0
	IFB1	282.2	ug/L	300	94	20.0

*Criteria = 80-120%R of True Value or +/- PQL

See raw data for complete analyte list and results.

TechLaw, Inc. - ESAT Region 8
Detection Limit (PQL) Standard
ICPMS-PE DRC-II

Metals (Total Recov) by EPA 200/7000 Series Methods

Sequence: 1010057

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%R</u>	<u>Units</u>
Antimony	1.00	1.0	98	ug/L
Arsenic	2.00	2.1	104	ug/L
Cadmium	0.200	0.2	96	ug/L
Chromium	1.00	1.0	96	ug/L
Cobalt	0.200	0.2	97	ug/L
Lead	0.200	0.2	99	ug/L
Molybdenum	0.200	0.2	78	ug/L
Nickel	1.00	1.0	96	ug/L
Selenium	1.00	1.1	107	ug/L
Silver	0.500	0.5	93	ug/L
Thallium	0.200	0.2	100	ug/L
Vanadium	2.00	1.9	96	ug/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

TechLaw, Inc. - ESAT Region 8
Detection Limit (PQL) Standard
ICPOE - PE Optima

Metals (Total Recov) by EPA 200/7000 Series Methods

Sequence: 1010056

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%R</u>	<u>Units</u>
Aluminum	100	102.85	103	ug/L
Barium	10.0	10.384	104	ug/L
Beryllium	5.00	5.0939	102	ug/L
Calcium	250	259.85	104	ug/L
Copper	10.0	9.7825	98	ug/L
Iron	100	107.67	108	ug/L
Magnesium	1000	1074.7	107	ug/L
Manganese	10.0	10.603	106	ug/L
Potassium	1000	1094.7	109	ug/L
Sodium	1000	1074.3	107	ug/L
Strontium	10.0	10.538	105	ug/L
Titanium	50.0	51.469	103	ug/L
Zinc	50.0	53.700	107	ug/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

Project Name: Upper Animas - Rush SED - Oct 2010

Certificate of Analysis

TDF #:

DG-214

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: EPA 200.2/200.7

Total Recoverable

Sequence ID#: 1010056

Instrument ID #: ICPOE - PE Optima

Solid (dry wt basis)

LSR #: DG-214

Analysis ID	Sample Name	Analysis Date	Analysis Time
1010056-ICV1	Initial Cal Check	10/12/10	12:40
1010056-ICB1	Initial Cal Blank	10/12/10	12:43
1010056-CRL1	Instrument RL Check	10/12/10	12:46
1010056-IFA1	Interference Check A	10/12/10	12:49
1010056-IFB1	Interference Check B	10/12/10	12:53
1010056-CCV1	Calibration Check	10/12/10	12:57
1010056-CCB1	Calibration Blank	10/12/10	13:00
1010049-BLK1	Blank	10/12/10	13:03
1010049-SRM1	Reference	10/12/10	13:06
C101003-01	UASE001D	10/12/10	13:08
1010049-DUP1	Duplicate	10/12/10	13:11
1010056-SRD1	Serial Dilution	10/12/10	13:14
1010049-MS1	Matrix Spike	10/12/10	13:17
1010049-MSD1	Matrix Spike Dup	10/12/10	13:20
1010049-PS1	Post Spike	10/12/10	13:22
C101003-02	UASE002	10/12/10	13:25
1010056-CCV2	Calibration Check	10/12/10	13:31
1010056-CCB2	Calibration Blank	10/12/10	13:34
C101003-03	UASE003	10/12/10	13:37
C101003-04	UASE001	10/12/10	13:40
1010056-CCV3	Calibration Check	10/12/10	13:46
1010056-CCB3	Calibration Blank	10/12/10	13:49

Project Name: Upper Animas - Rush SED - Oct 2010

Certificate of Analysis

TDF #: DG-214

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: EPA 200.2 / 200.8

Total Recoverable

Sequence ID#: 1010057

Instrument ID #: ICPMS-PE DRC-II

Solid (dry wt basis)

LSR #: DG-214

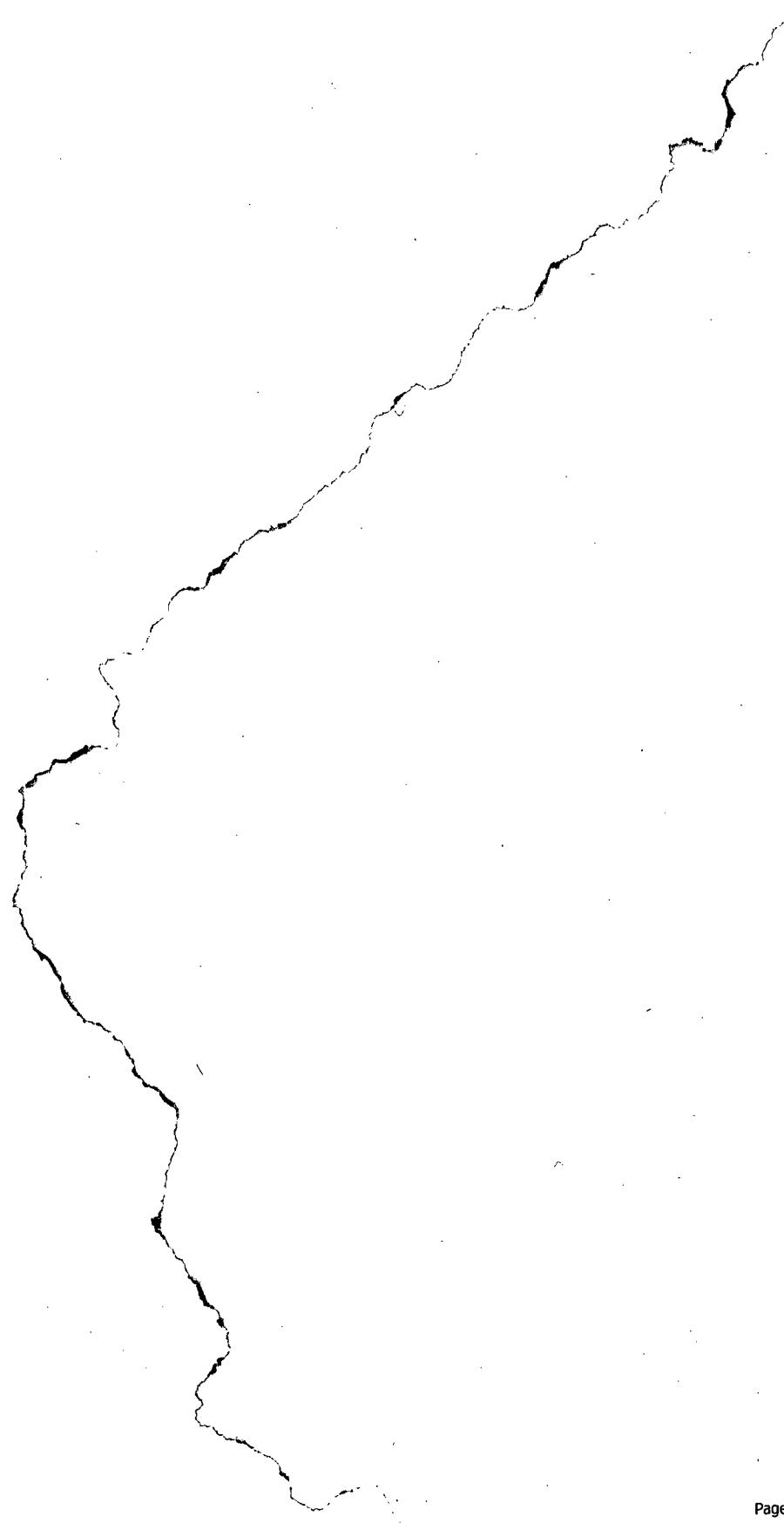
Analysis ID	Sample Name	Analysis Date	Analysis Time
1010057-ICV1	Initial Cal Check	10/13/10	11:00
1010057-ICB1	Initial Cal Blank	10/13/10	11:03
1010057-CRL1	Instrument RL Check	10/13/10	11:06
1010057-IFA1	Interference Check A	10/13/10	11:09
1010057-IFB1	Interference Check B	10/13/10	11:12
1010057-CCV1	Calibration Check	10/13/10	11:15
1010057-CCB1	Calibration Blank	10/13/10	11:18
1010049-BLK2	Blank	10/13/10	11:21
C101003-01	UASE001D	10/13/10	11:24
1010049-DUP2	Duplicate	10/13/10	11:26
1010057-SRD1	Serial Dilution	10/13/10	11:29
1010049-SRM2	Reference	10/13/10	11:32
1010049-MS2	Matrix Spike	10/13/10	11:35
1010049-MSD2	Matrix Spike Dup	10/13/10	11:37
1010049-PS2	Post Spike	10/13/10	11:40
C101003-02	UASE002	10/13/10	11:43
1010057-CCV2	Calibration Check	10/13/10	11:49
1010057-CCB2	Calibration Blank	10/13/10	11:52
C101003-03	UASE003	10/13/10	11:55
C101003-04	UASE001	10/13/10	11:58
1010057-CCV3	Calibration Check	10/13/10	12:03
1010057-CCB3	Calibration Blank	10/13/10	12:06

Project Name: Upper Animas - Rush SED - Oct 2010

TDF #:

DG-214

Certificate of Analysis



COPY

REGION VIII
DATA VALIDATION REPORT
INORGANIC

Case/TDD No.	Site Name		Operable Unit
40755 / 1008-16	Upper Animas Mining District		
Sabrina Forrest			
Contractor Laboratory	Contract No.	SDG No.	Laboratory DPO/Region
ALS Laboratory Group	EPW05026	MH35E5	

Review Assigned Date: December 15, 2010 Data Validator: Fred Luck
 Review Completion Date: February 18, 2011 Report Reviewer: Lesley Boyd

Sample ID	Matrix	Analysis
MH35E5	Sediment	CLP -Metals
MH35E6		
MH35E7		
MH35E8		
MH35E9		
MH35F0		
MH35F1		
MH35F2		
MH35F3		
MH35F4		
MH35F5		
MH35F6		
MH35F7		

Sample ID	Matrix	Analysis
MH35F8	Sediment	CLP -Metals
MH35F9		
MH35G0		
MH35G1		
MH35G2		
MH35G3		
MH35G4		

DATA QUALITY STATEMENT

- () Data are ACCEPTABLE according to EPA Functional guidelines with no qualifiers (flags) added by the reviewer.
() Data are UNACCEPTABLE according to EPA Functional Guidelines.
(X) Data are acceptable with QUALIFICATIONS noted in review.

Telephone/Communication Logs Enclosed? Yes _____ No X _____

CLP Project Officer Attention Required? Yes _____ No X _____ If yes, list the items that require attention:

INORGANIC DATA VALIDATION REPORT**REVIEW NARRATIVE SUMMARY**

This data package was reviewed according to "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review," January 2010.

Raw data were reviewed for completeness and transcription accuracy onto the summary forms. Approximately 10-15% of the results reported in each of the samples, calibrations, and QC analyses were recalculated and verified. If problems were identified during the recalculation of results, a more thorough calculation check was performed.

The data package, Case No. 40755, SDG No. MH35E5, consisted of twenty sediment samples for metals by ICP-AES and ICP-MS (ISM01.2). The following table lists the data qualifiers added to the sample analyses. Please see Data Qualifier Definitions, attached to the end of this report.

Sample ID	Elements	Qualifiers	Reason for Qualification	Review Section
All Samples	Antimony	U	Blank Contamination	3
MH35E5, MH35E6, MH35F0, MH35F1, MH35F2, MH35F3, MH35F4, MH35F5, MH35F6, MH35F7, MH35F9, MH35G1, MH35G2, MH35G3, MH35G4	Beryllium			
MH35E5, MH35E6, MH35F0, MH35F3, MH35F4, MH35F6, MH35F7, MH35G0, MH35G1, MH35G2	Cadmium			
MH35F3, MH35F5, MH35G1	Calcium			
MH35F8	Chromium			
MH35F8	Magnesium			
MH35E9, MH35F0, MH35F8, MH35G1, MH35G3	Potassium			
MH35E9, MH35F8	Silver			
All Samples	Sodium			
MH35E5, MH35E6, MH35E7, MH35E8, MH35E9, MH35F0, MH35F1, MH35F2, MH35F3, MH35F4, MH35F5, MH35F6, MH35F8, MH35F9, MH35G1, MH35G3	Thallium			

Sample ID	Elements	Qualifiers	Reason for Qualification	Review Section
MH35E7, MH35E8, MH35E9, MH35F8, MH35G0	Beryllium	J+	Potentially false positive detection in ICS check sample	4
MH35E5, MH35E6, MH35E7, MH35E8, MH35F1, MH35F2, MH35F3, MH35F4, MH35F5, MH35F6, MH35F7, MH35F9, MH35G0, MH35G2, MH35G4	Potassium			
MH35E5, MH35E6, MH35E7, MH35E8, MH35F0, MH35F1, MH35F2, MH35F3, MH35F4, MH35F5, MH35F6, MH35F7, MH35F9, MH35G0, MH35G1, MH35G2, MH35G3, MH35G4	Silver			
MH35F7, MH35G0, MH35G2, MH35G4	Thallium			
All Samples	Barium, Zinc	J/UJ	Original & Duplicate both >5x the CRQL and RPD > 20%	6
	Cadmium		Original and/or Duplicate < 5x the CRQL and absolute difference > CRQL	
	Antimony, Selenium, Silver		MS 30 - 74%R, Post Digestion Spike %R ≥ 75%	7
	Copper		MS <30%R, Post Digestion Spike %R ≥ 75%	
	Arsenic, Beryllium, Cadmium, Cobalt, Copper, Nickel, Potassium, Sodium, Zinc	J	MS > 125%R, Post Digestion Spike %R ≤ 125%	8
			Serial Dilution %D > 10%	

1. PRESERVATION AND HOLDING TIMES

All technical holding times and preservation criteria were met.

Yes No X

Comments: The samples were analyzed within 180 days for the ICP metals. According to the Sample Log-In Sheet and case narrative, the two sample coolers were each received at a temperature of 7°C, which is outside the recommended temperature range of 4 ± 2°C. The Sample Log-In Sheet further indicates that neither cooler contained a Cooler Temperature Indicator Bottle, as indicated on the form to be required. There is also no indication that SMO was contacted regarding this issue, neither is any documentation of the resolution or indication of how the cooler temperature was derived provided. The TR/COC also did not designate a sample for laboratory QC, but the documentation of the resolution of this issue is provided in the SDG.

When the sample preservation criteria are not met, but the sample analysis and extraction are within the technical holding times then professional judgment is used whether to qualify the data. No action was taken since the preservation exceedence was minimal and the extraction and holding times were well within the established parameters.

The sampler did not designate a specific sample on the TR/COC for Laboratory QC; in accordance with reported previous Region 8 direction, the laboratory did select a sample (MH35G4) for laboratory QC. The reviewer has not been provided any information regarding PE, field blank, or rinsate samples; therefore cannot evaluate whether the selected sample was a PE, field blank, or rinsate sample.

No other shipping or receiving problems were noted. Chain-of-custody, summary forms, and raw data were evaluated.

2. INSTRUMENT CALIBRATIONS: INITIAL AND CONTINUING CALIBRATION VERIFICATION (ICV AND CCV)

The initial and continuing calibration verification standards (ICV and CCV, respectively) met SOW requirements.

Yes X No

Comments: None.

The calibration verification results were within 90-110% recovery for metals, 85-115% for cyanide, and 80-120% for mercury.

Yes X No

Comments: None.

The continuing calibration standards were run at 10% frequency or every two hours.

Yes X No _____

Comments: None.

3. BLANKS

The initial and continuing calibration blanks (ICB and CCB, respectively) met SOW requirements.

Yes X No _____

Comments: For the ICP-AES analyses, the ICB was rerun.

The continuing calibration blanks were run at 10% frequency.

Yes X No _____

Comments: Continuing calibration blanks were run every 10 samples.

A laboratory/preparation blank was run at the frequency of one per twenty samples, or per sample delivery group (whichever is more frequent), and for each matrix analyzed.

Yes X No _____

Comments: None.

All analyzed blanks were free of contamination.

Yes _____ No X

Comments: The following table lists the blanks with contamination that resulted in sample qualification, elements present, affected samples, and data qualifiers:

Blank Contaminants

Blank ID	Contaminant	CRQL (mg/Kg)	MDL (mg/Kg)	Concentration Found in Blank (mg/Kg)	Associated Samples	Concentration Found in Sample (mg/Kg)	Qualifier/Adjustment
PB	Antimony	1	0.0097	0.013	MH35E5 MH35E6 MH35E7 MH35E8 MH35E9 MH35F0 MH35F1 MH35F2 MH35F3 MH35F4 MH35F5 MH35F6 MH35F7 MH35F8 MH35F9 MH35G0 MH35G1 MH35G2 MH35G3 MH35G4	1.3 0.68 0.22 0.98 0.79 0.44 1.1 0.56 0.87 0.88 1.2 0.38 0.58 0.94 0.41 0.42 1.4 0.44 0.59 0.33	2.1 U 1.4 U 1.3 U 1.6 U 1.3 U 1.7 U 1.6 U 1.4 U 1.6 U 1.4 U 1.3 U 1.5 U 1.9 U 2.5 U 1.3 U 1.4 U 3.8 U 1.6 U 1.3 U 1.6 U
PB	Beryllium	0.5	0.0032	0.011	MH35E5 MH35E6 MH35F0 MH35F1 MH35F2 MH35F3 MH35F4 MH35F5 MH35F6 MH35F7 MH35F9 MH35G1 MH35G2 MH35G3 MH35G4	0.44 0.33 0.66 0.39 0.38 0.41 0.38 0.41 0.41 0.57 0.46 0.29 0.47 0.46 0.56	1.0 U 0.72 U 0.87 U 0.78 U 0.68 U 0.82 U 0.71 U 0.64 U 0.74 U 0.93 U 0.66 U 1.9 U 0.78 U 0.64 U 0.81 U
PB	Cadmium	0.5	0.0027	0.500	MH35E5 MH35E6 MH35F0 MH35F3 MH35F4 MH35F6 MH35F7 MH35G0 MH35G1 MH35G2	0.74 0.66 0.78 0.52 0.47 0.51 0.79 0.35 0.45 0.44	1.0 U 0.72 U 0.87 U 0.82 U 0.71 U 0.74 U 0.93 U 0.68 U 1.9 U 0.78 U
PB	Calcium	500	1.7	4.404	MH35F3 MH35F5 MH35G1	791 230 1150	822 U 644 U 1900 U
PB	Chromium	1	0.026	1.000	MH35F8	1.6	2.5 U
PB	Magnesium	500	1.2	500	MH35F8	447	1240 U

Blank ID	Contam-inant	CRQL (mg/Kg)	MDL (mg/Kg)	Concentration Found in Blank (mg/Kg)	Associated Samples	Concentration Found in Sample (mg/Kg)	Qualifier/Adjustment
PB	Potassium	500	5.8	55.883	MH35E9 MH35F0 MH35F8 MH35G1 MH35G3	375 842 209 1160 510	674 U 865 U 1240 U 1900 U 636 U
PB	Silver	0.5	0.0023	0.010	MH35E9 MH35F8	0.48 0.22	0.67 U 1.2 U
PB	Sodium	500	0.73	18.271	MH35E5 MH35E6 MH35E7 MH35E8 MH35E9 MH35F0 MH35F1 MH35F2 MH35F3 MH35F4 MH35F5 MH35F6 MH35F7 MH35F8 MH35F9 MH35G0 MH35G1 MH35G2 MH35G3 MH35G4	117 60.2 49.7 92.9 180 58.1 88.1 75.6 76.1 68.7 69.8 90.6 109 32.3 62.4 56.6 77.5 100 25.2 94.7	1040 U 723 U 641 U 814 U 674 U 865 U 781 U 676U 822 U 714 U 644 U 741 U 926 U 1240 U 657 U 684 U 1900 U 782 U 636 U 813 U
PB	Thallium	0.5	0.0015	0.007	MH35E5 MH35E6 MH35E7 MH35E8 MH35E9 MH35F0 MH35F1 MH35F2 MH35F3 MH35F4 MH35F5 MH35F6 MH35F8 MH35F9 MH35G1 MH35G3	0.72 0.41 0.32 0.45 0.19 0.31 0.62 0.41 0.75 0.69 0.59 0.44 0.26 0.36 0.43 0.42	1.0 U 0.72 U 0.64 U 0.81 U 0.67 U 0.87 U 0.78 U 0.68 U 0.82 U 0.71 U 0.64 U 0.74 U 1.2 U 0.66 U 1.9 U 0.64 U

4. INDUCTIVELY COUPLED PLASMA - INTERFERENCE CHECK SAMPLE (ICP-ICS)

The ICP interference check sample (ICS) was run at the beginning and end of each sample analysis run and every 20 analytical samples, but not prior to the ICV.

Yes X No _____

Comments: None.

Percent recovery of the analytes in the ICS solutions were within the range of 80-120% or the result was within \pm the CRQL.

Yes X No _____

Comments: None.

Sample results for aluminum, calcium, iron, and magnesium were less than the ICSA values or no interference was noted.

Yes X No _____ NA _____

Comments: None.

Sample results contain potential false positives and false negatives.

Yes X No _____

Comments: The following table lists the elements with potential false positives or false negatives that resulted in sample qualification, affected samples, and data qualifiers:

ICP Interferences

Element	Concentration Found in ICSA Sample (ug/L)	Affected Samples	Concentration Found in Sample (mg/Kg)	Qualifier/ Adjustment
Beryllium	0.37	MH35E7 MH35E8 MH35E9 MH35F8 MH35G0	>MDL	J+
Potassium	1020	MH35E5 MH35E6 MH35E7 MH35E8 MH35F1 MH35F2 MH35F3 MH35F4 MH35F5 MH35F6 MH35F7 MH35F9 MH35G0 MH35G2 MH35G4		
Silver	0.015	MH35E5 MH35E6 MH35E7 MH35E8 MH35F0 MH35F1 MH35F2 MH35F3 MH35F4 MH35F5 MH35F6 MH35F7 MH35F9 MH35G0 MH35G1 MH35G2 MH35G3 MH35G4		
Thallium	0.056	MH35F7 MH35G0 MH35G2 MH35G4		

5. LABORATORY CONTROL SAMPLE

The laboratory control sample (LCS) was prepared and analyzed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No _____

Comments: None.

All results were within control limits OF 70-130%.

Yes X No _____

Comments: None.

6. FORM 6 & 12 - DUPLICATE SAMPLE ANALYSIS

Duplicate sample analysis was performed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No _____ NA _____

Comments: None.

The RPDs were calculated correctly.

Yes X No _____ NA _____

Comments: None.

For sample concentrations greater than five times the CRQL, RPDs were within $\pm 20\%$ (limits of $\pm 35\%$ apply for soil/sediments/tailings samples).

Yes _____ No X NA _____

Comments: The following table lists the duplicate results outside control limits, samples affected, and data qualifiers:

Element	RPD	QC Limit	Samples Affected	Qualifiers
Barium	57%	20%	All samples	J / UJ
Zinc	75%			

For sample concentrations less than five times the CRQL, duplicate analysis results were within the control window of CRQL (absolute difference < CRQL for soils).

Yes _____ No X NA _____

Comments: The following table lists the duplicate results outside control limits, samples affected, and data qualifiers:

Element	Sample / Duplicate Result (mg / Kg)	% RPD	5x CRQL (mg / Kg)	Samples Affected	Qualifiers
Cadmium	2.73 / 1.13	83 %	2.5	All samples	J / UJ

7. SPIKE SAMPLE ANALYSIS

A matrix spike sample was analyzed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No _____ NA _____

Comments: None.

The percent recoveries (%Rs) were calculated correctly.

Yes X No _____ NA _____

Comments: None.

Spike recoveries were within the range of 75-125% (an exception is granted where the sample concentration is four times the spike concentration).

Yes _____ No X

Comments: The following table lists the spike recoveries outside control limits, post digestion spike recoveries, samples affected, and data qualifiers:

Element	Matrix Spike %R	Post-Digestion %R	Samples Affected	Qualifiers
Antimony	13%	168%	All samples	J/UJ
Cadmium	61%	83%		J
Copper	182%	77%		
Selenium	6%	114%		J/UJ
Silver	1%	87%		

A post-digest spike was performed for those elements that did not meet the specified criteria (i.e., Pre-digestion/pre-distillation spike recovery falls outside of control limits and sample result is less than four times the spike amount added, exception: Ag, Hg).

Yes X No _____

Comments: None.

8. ICP SERIAL DILUTION

A serial dilution was performed for ICP analysis with every twenty or fewer samples of a similar matrix, or one per sample delivery group, whichever is more frequent.

Yes X No _____

Comments: None.

The serial dilution was without interference problems as defined by the SOW.

Yes _____ No X

Comments: The following serial dilution %Ds were greater than 10% and the original sample result was at least 50* the MDL:

Element	% Difference	Samples Affected	Qualifiers
Arsenic	30%	All samples	J
Beryllium	14%		
Cadmium	11%		
Cobalt	13%		
Copper	18%		
Nickel	15%		
Potassium	19%		
Sodium	30%		
Zinc	30%		

9. REGIONAL QUALITY ASSURANCE (QA) AND QUALITY CONTROL (QC)

Regional QA/QC was conducted as initiated by the EPA Region 8.

Yes No NA X

Comments: The SDG shows no indication of EPA Region 8 initiating any additional QA / QC.

10. FORM 10 - INTERELEMENT CORRECTION FACTORS FOR ICP

Interelement corrections for ICP were reported.

Yes X No

Comments: None.

11. FORM 12 - PREPARATION LOG

Information on the preparation of samples for analysis was reported on Form 12.

Yes X No

Comments: None.

12. FORM 13 - ANALYSIS RUN LOG

A Form 13 with the required information was filled out for each analysis run in the data package.

Yes X No

Comments: None.

13. Additional Comments or Problems/Resolutions Not Addressed Above

Page 1 of the Evidence Audit Checklist (EAC) indicates three airbills are associated with this SDG, however documentation is only provided for Airbill Number 3430, which documents the shipment of four packages. The laboratory only documented receipt of two coolers, so it is unclear as to what the other two packages were that were included on the airbill.

INORGANIC DATA QUALITY ASSURANCE REVIEW**Region VIII****DATA QUALIFIER DEFINITIONS**

For the purpose of Data Validation, the following code letters and associated definitions are provided for use by the data validator to summarize the data quality. Use of additional qualifiers should be carefully considered. Definitions for all qualifiers used should be provided with each report.

GENERAL QUALIFIERS for use with both INORGANIC and ORGANIC DATA

- R - Reported value is "rejected." The data are unusable. Resampling or reanalysis may be necessary to verify the presence or absence of the compound.
- J - The associated numerical value is an estimated quantity and is the approximate concentration of the analyte in the sample.
- J+ - The associated numerical value is an estimated quantity but the result may be biased high.
- J- - The associated numerical value is an estimated quantity but the result may be biased low.
- U J - The reported quantitation limit is estimated because Quality Control criteria were not met. Element or compound may or may not be present in the sample.
- N J - Estimated value of a tentatively identified compound. (Identified with a CAS number.)
ORGANICS analysis only.
- U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

ACRONYMS

AA	Atomic Absorption
Ag	Silver
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
CRA	CRQL standard required for AA
CRQL	Contract Required Quantitation Limit
CRI	CRQL standard required for ICP
CV	Cold Vapor
EPA	U.S. Environmental Protection Agency
GFAA	Graphite Furnace Atomic Absorption
Hg	Mercury
ICB	Initial Calibration Blank
ICP	Inductively Coupled Plasma
ICS	Interference Check Sample
ICSA	Interference Check Sample (Solution A)
ICSAB	Interference Check Sample (Solution AB)
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LRA	Linear Range Verification Analysis
MDL	Method Detection Limit
PDS	Post Digestion Spike
QC	Quality Control
RPD	Relative Percent Difference
RPM	Regional Project Manager
RSD	Percent Relative Standard Deviation
SA	Spike Added
SAS	Special Analytical Services
SDG	Sample Delivery Group
SOW	Statement of Work
SR	Sample Result
SSR	Spiked Sample Result

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35E5

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35E5
 Matrix: Soil Lab Sample ID: 1030768001
 % Solids: 48.3 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6860			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1100			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	78100			P
7439-92-1	Lead				
7439-95-4	Magnesium	3030			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1700		E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	117.	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J+ m
1040 u/c
2/18/u

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35E5

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAc Case No.: 40755

Mod. Ref. No.: _____ SDG No.: MH35E5

Matrix: Soil

Lab Sample ID: 1030768001

% Solids: 48.3

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	1.3	J	N	MS
7440-38-2	Arsenic	45.3		E	MS
7440-39-3	Barium	559.		*	MS
7440-41-7	Beryllium	0.44	J	E	MS
7440-43-9	Cadmium	0.74	J	*NE	MS
7440-70-2	Calcium				
7440-47-3	Chromium	6.6		*	MS
7440-48-4	Cobalt	3.9		E	MS
7440-50-8	Copper	48.7		NE	MS
7439-89-6	Iron				
7439-92-1	Lead	459.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	333.		*	MS
7439-97-6	Mercury				
7440-02-0	Nickel	3.4		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.6	J	N	MS
7440-22-4	Silver	4.5		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.72	J		MS
7440-62-2	Vanadium	49.7		*	MS
7440-66-6	Zinc	205.		*E	MS
57-12-5	Cyanide				

Color Before: ORANGE Clarity Before: _____ Texture: MEDIUM

Color After: WHITE Clarity After: CLOUDY Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35E6

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35E5
 Matrix: Soil Lab Sample ID: 1030768002
 % Solids: 69.2 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7030			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1010			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	68800			P
7439-92-1	Lead				
7439-95-4	Magnesium	4080			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	889.		E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	60.2	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J + M
723 U
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35E6

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAC Case No.: 40755

Mod. Ref. No.: _____ SDG No.: MH35E5

Matrix: Soil

Lab Sample ID: 1030768002

% Solids: 69.2

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.68	J	N	MS
7440-38-2	Arsenic	34.1		E	MS
7440-39-3	Barium	210.		*	MS
7440-41-7	Beryllium	0.33	J	E	MS
7440-43-9	Cadmium	0.66	J	*NE	MS
7440-70-2	Calcium				
7440-47-3	Chromium	6.4		*	MS
7440-48-4	Cobalt	4.3		E	MS
7440-50-8	Copper	53.0		NE	MS
7439-89-6	Iron				
7439-92-1	Lead	322.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	506.		*	MS
7439-97-6	Mercury				
7440-02-0	Nickel	4.0		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.81	J	N	MS
7440-22-4	Silver	2.5		N.	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.41	J		MS
7440-62-2	Vanadium	44.8		*	MS
7440-66-6	Zinc	199.		*E	MS
57-12-5	Cyanide				

Color Before: ORANGE Clarity Before: _____ Texture: MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35E7

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAAC Case No.: 40755 Mod. Ref. No.: SDG No.: MH35E5
 Matrix: Soil Lab Sample ID: 1030768003
 % Solids: 78.0 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8570			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	2560			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	20800			P
7439-92-1	Lead				
7439-95-4	Magnesium	5610			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	745.	E		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	49.7	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J+ M
641 07/21/11

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35E8

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35E5
 Matrix: Soil Lab Sample ID: 1030768004
 % Solids: 61.4 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12300			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	2010			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	58100			P
7439-92-1	Lead				
7439-95-4	Magnesium	4270			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1260		E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	92.9	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J+ 71
814 01/11
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN

EPA SAMPLE NO.

MH35E8

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATA C Case No.: 40755

Mod. Ref. No.: _____ SDG No.: MH35E5

Matrix: Soil

Lab Sample ID: 1030768004

% Solids: 61.4

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.98	J	N	MS
7440-38-2	Arsenic	27.3		E	MS
7440-39-3	Barium	261.		*	MS
7440-41-7	Beryllium	0.89		E	MS
7440-43-9	Cadmium	2.0		*NE	MS
7440-70-2	Calcium				
7440-47-3	Chromium	5.6		*	MS
7440-48-4	Cobalt	12.3		E	MS
7440-50-8	Copper	167.		NE	MS
7439-89-6	Iron				
7439-92-1	Lead	734.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	2710		D*	MS
7439-97-6	Mercury				
7440-02-0	Nickel	5.2		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.52	J	N	MS
7440-22-4	Silver	2.8		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.45	J		MS
7440-62-2	Vanadium	41.1		*	MS
7440-66-6	Zinc	447.		*E	MS
57-12-5	Cyanide				

Color Before: ORANGE Clarity Before: Texture: MEDIUM

Color After: TAN Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35E9

Lab Name: ALS Laboratory Group Contract: EPW09036

Lab Code: DATA5 Case No.: 40755 Mod. Ref. No.: SDG No.: MH35E5

Matrix: Soil Lab Sample ID: 1030768005

% Solids: 74.2 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

674 U ⁸¹

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35E9

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATA C Case No.: 40755

Mod. Ref. No.: SDG No.: MH35E5

Matrix: Soil

Lab Sample ID: 1030768005

% Solids: 74.2

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.79	J	N	MS
7440-38-2	Arsenic	14.2		DE	MS
7440-39-3	Barium	79.3		*	MS
7440-41-7	Beryllium	0.75		E	MS
7440-43-9	Cadmium	0.97		*NE	MS
7440-70-2	Calcium				
7440-47-3	Chromium	6.9		D*	MS
7440-48-4	Cobalt	11.0		DE	MS
7440-50-8	Copper	201.		DNE	MS
7439-89-6	Iron				
7439-92-1	Lead	187.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	1160		D*	MS
7439-97-6	Mercury				
7440-02-0	Nickel	5.9		DE	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.45	J	DN	MS
7440-22-4	Silver	0.48	J	N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.19	J		MS
7440-62-2	Vanadium	36.1		D*	MS
7440-66-6	Zinc	289.		D*E	MS
57-12-5	Cyanide				

Color Before: ORANGE Clarity Before: Texture: MEDIUM

Clarity Before: **Texture: MEDIUM**

Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Clarity After: CLEAR Artifacts:

Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F0

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35E5
 Matrix: Soil Lab Sample ID: 1030768006
 % Solids: 57.8 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11600			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1810			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	44300			P
7439-92-1	Lead				
7439-95-4	Magnesium	6090			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	842.	E		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	58.1	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

865 U M

865 U M
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F0

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAC Case No.: 40755

Mod. Ref. No.: SDG No.: MH35E5

Matrix: Soil

Lab Sample ID: 1030768006

% Solids: 57.8

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.44	J	N	MS
7440-38-2	Arsenic	13.3		E	MS
7440-39-3	Barium	123.		*	MS
7440-41-7	Beryllium	0.66	J	E	MS
7440-43-9	Cadmium	0.78	J	*NE	MS
7440-70-2	Calcium				
7440-47-3	Chromium	4.7		*	MS
7440-48-4	Cobalt	5.4		E	MS
7440-50-8	Copper	91.4		NE	MS
7439-89-6	Iron				
7439-92-1	Lead	366.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	1440		D*	MS
7439-97-6	Mercury				
7440-02-0	Nickel	3.9		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.51	J	N	MS
7440-22-4	Silver	1.2		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.31	J		MS
7440-62-2	Vanadium	25.8		*	MS
7440-66-6	Zinc	241.		*E	MS
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F1

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35E5
 Matrix: Soil Lab Sample ID: 1030768007
 % Solids: 64.0 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5900			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	934.			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	71700	D		P
7439-92-1	Lead				
7439-95-4	Magnesium	2440			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1300	E		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	88.1	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J + 74
781 U 32
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F1

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAC Case No.: 40755

Mod. Ref. No.: SDG No.: MH35E5

Matrix: Soil

Lab Sample ID: 1030768007

% Solids: 64.0

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	1.1	J	N	MS
7440-38-2	Arsenic	41.7		E	MS
7440-39-3	Barium	424.		*	MS
7440-41-7	Beryllium	0.39	J	E	MS
7440-43-9	Cadmium	0.83		*NE	MS
7440-70-2	Calcium				
7440-47-3	Chromium	5.2		*	MS
7440-48-4	Cobalt	3.8		E	MS
7440-50-8	Copper	42.7		NE	MS
7439-89-6	Iron				
7439-92-1	Lead	394.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	421.		*	MS
7439-97-6	Mercury				
7440-02-0	Nickel	3.1		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.5	J	N	MS
7440-22-4	Silver	2.4		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.62	J		MS
7440-62-2	Vanadium	40.7		*	MS
7440-66-6	Zinc	197.		*E	MS
57-12-5	Cyanide				

Color Before: ORANGE Clarity Before: MEDIUM

Clarity Before:

Texture::MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts:

Clarity After: CLEAR

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F2

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35E5
 Matrix: Soil Lab Sample ID: 1030768008
 % Solids: 74.0 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7040			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1040			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	62200		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	3760			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1090		E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	75.6	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J + N
676 U N
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F2

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAc Case No.: 40755

Mod. Ref. No.: _____ SDG No.: MH35E5

Matrix: Soil

Lab Sample ID: 1030768008

% Solids: 74.0

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.56	J	N	MS
7440-38-2	Arsenic	35.3		E	MS
7440-39-3	Barium	342.		*	MS
7440-41-7	Beryllium	0.38	J	E	MS
7440-43-9	Cadmium	1.4		*NE	MS
7440-70-2	Calcium				
7440-47-3	Chromium	5.7		*	MS
7440-48-4	Cobalt	4.8		E	MS
7440-50-8	Copper	98.6		NE	MS
7439-89-6	Iron				
7439-92-1	Lead	306.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	580.		*	MS
7439-97-6	Mercury				
7440-02-0	Nickel	3.4		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.0	J	N	MS
7440-22-4	Silver	1.4		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.41	J		MS
7440-62-2	Vanadium	42.3		*	MS
7440-66-6	Zinc	360.		*E	MS
57-12-5	Cyanide				

1.4 UJ 7/11
J N
J E
J * MS
0.68 U 7/11
J E
J * MS
J N 3/1/11
J E
J * MS
J N 3/1/11
J E
J * MS
340 UZ J 7/11
J N
J E
0.68 U 7/11
J N 3/1/11
J E
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F3

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35E5
 Matrix: Soil Lab Sample ID: 1030768009
 % Solids: 60.8 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4890			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	791.			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	88900	D		P
7439-92-1	Lead				
7439-95-4	Magnesium	2180			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1200		E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	76.1	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

822 U M

J + M

822 U M
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F3

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAc Case No.: 40755

Mod. Ref. No.: SDG No.: MH35E5

Matrix: Soil

Lab Sample ID: 1030768009

% Solids: 60.8

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.87	J	N	MS
7440-38-2	Arsenic	57.0		E	MS
7440-39-3	Barium	317.		*	MS
7440-41-7	Beryllium	0.41	J	E	MS
7440-43-9	Cadmium	0.52	J	*NE	MS
7440-70-2	Calcium				
7440-47-3	Chromium	4.8		*	MS
7440-48-4	Cobalt	3.6		E	MS
7440-50-8	Copper	41.8		NE	MS
7439-89-6	Iron				
7439-92-1	Lead	541.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	436.		*	MS
7439-97-6	Mercury				
7440-02-0	Nickel	3.2		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.4	J	N	MS
7440-22-4	Silver	2.1		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.75	J		MS
7440-62-2	Vanadium	48.6		*	MS
7440-66-6	Zinc	153.		*E	MS
57-12-5	Cyanide				

Color Before: ORANGE Clarity Before: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F4

Lab Name: ALS Laboratory Group Contract: EPW09036
Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35E5
Matrix: Soil Lab Sample ID: 1030768010
% Solids: 70.0 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5540			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	735.			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	56500			P
7439-92-1	Lead				
7439-95-4	Magnesium	2810			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1270		E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	68.7	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J + K
714 U M
2/18/11

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F4

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAC Case No.: 40755

Mod. Ref. No.: _____ SDG No.: MH35E5

Matrix: Soil

Lab Sample ID: 1030768010

% Solids: 70.0

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.88	J	N	MS
7440-38-2	Arsenic	34.0		E	MS
7440-39-3	Barium	422.		*	MS
7440-41-7	Beryllium	0.38	J	E	MS
7440-43-9	Cadmium	0.47	J	*NE	MS
7440-70-2	Calcium				
7440-47-3	Chromium	5.9		*	MS
7440-48-4	Cobalt	3.1		E	MS
7440-50-8	Copper	29.8		NE	MS
7439-89-6	Iron				
7439-92-1	Lead	361.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	311.		*	MS
7439-97-6	Mercury				
7440-02-0	Nickel	2.8		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.3	J	N	MS
7440-22-4	Silver	1.9		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.69	J		MS
7440-62-2	Vanadium	34.6		*	MS
7440-66-6	Zinc	136.		*E	MS
57-12-5	Cyanide				

Color Before: ORANGE Clarity Before: _____ Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F5

Lab Name: ALS Laboratory Group Contract: EPW09036
Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35E5
Matrix: Soil Lab Sample ID: 1030768011
% Solids: 77.7 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5240			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	230.	J		P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	44400			P
7439-92-1	Lead				
7439-95-4	Magnesium	2570			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1230		E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	69.8	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

644 U 72

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644 v n

2/18/10

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW **Clarity After:** CLEAR **Artifacts:**

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F5

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: SDG No.: MH35E5
 Matrix: Soil Lab Sample ID: 1030768011
 % Solids: 77.7 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	1.2	J	N	MS
7440-38-2	Arsenic	54.8		E	MS
7440-39-3	Barium	582.		*	MS
7440-41-7	Beryllium	0.41	J	E	MS
7440-43-9	Cadmium	2.6		*NE	MS
7440-70-2	Calcium				
7440-47-3	Chromium	4.5		*	MS
7440-48-4	Cobalt	4.0		E	MS
7440-50-8	Copper	40.4		NE	MS
7439-89-6	Iron				
7439-92-1	Lead	598.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	304.		*	MS
7439-97-6	Mercury				
7440-02-0	Nickel	3.3		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	2.0	J	N	MS
7440-22-4	Silver	3.6		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.59	J		MS
7440-62-2	Vanadium	36.4		*	MS
7440-66-6	Zinc	604.		*E	MS
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: WHITE Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F6

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35E5
 Matrix: Soil Lab Sample ID: 1030768012
 % Solids: 67.5 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8220			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1040			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	94600		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	4550			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1060		E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	80.6	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J + 4

74102

2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F6

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAC Case No.: 40755

Mod. Ref. No.: SDG No.: MH35E5

Matrix: Soil

Lab Sample ID: 1030768012

% Solids: 67.5

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.38	J	N	MS
7440-38-2	Arsenic	34.3		E	MS
7440-39-3	Barium	121.		*	MS
7440-41-7	Beryllium	0.41	J	E	MS
7440-43-9	Cadmium	0.51	J	*NE	MS
7440-70-2	Calcium				
7440-47-3	Chromium	6.6		*	MS
7440-48-4	Cobalt	5.5		E	MS
7440-50-8	Copper	55.2		NE	MS
7439-89-6	Iron				
7439-92-1	Lead	334.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	831.		D*	MS
7439-97-6	Mercury				
7440-02-0	Nickel	3.9		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.81	J	N	MS
7440-22-4	Silver	1.4		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.44	J		MS
7440-62-2	Vanadium	49.9		*	MS
7440-66-6	Zinc	186.		*E	MS
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F7

Lab Name: ALS Laboratory Group Contract: EPW09036
Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35E5
Matrix: Soil Lab Sample ID: 1030768013
% Solids: 54.0 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

J + ⁿ

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F7

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAc Case No.: 40755

Mod. Ref. No.: _____ SDG No.: MH35E5

Matrix: Soil

Lab Sample ID: 1030768013

% Solids: 54.0

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.58	J	N	MS
7440-38-2	Arsenic	37.2		E	MS
7440-39-3	Barium	258.		*	MS
7440-41-7	Beryllium	0.57	J	E	MS
7440-43-9	Cadmium	0.79	J	*NE	MS
7440-70-2	Calcium				
7440-47-3	Chromium	8.4		*	MS
7440-48-4	Cobalt	4.4		E	MS
7440-50-8	Copper	59.7		NE	MS
7439-89-6	Iron				
7439-92-1	Lead	417.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	636.		*	MS
7439-97-6	Mercury				
7440-02-0	Nickel	3.6		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	2.1	J	N	MS
7440-22-4	Silver	2.2		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.99			MS
7440-62-2	Vanadium	71.7		*	MS
7440-66-6	Zinc	225.		*E	MS
57-12-5	Cyanide				

Color Before: ORANGE Clarity Before: _____ Texture: MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F8

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35E5
 Matrix: Soil Lab Sample ID: 1030768014
 % Solids: 40.4 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5060			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	4130			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	860000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	447.	J		P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	209.	J	E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	32.3	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

1240 U 72

1240 U 55

1240 U 72

2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F8

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATA C Case No.: 40755

Mod. Ref. No.: SDG No.: MH35E5

Matrix: Soil

Lab Sample ID: 1030768014

% Solids: 40.4

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.94	J	N	MS
7440-38-2	Arsenic	103.		E	MS
7440-39-3	Barium	36.3		*	MS
7440-41-7	Beryllium	10.3		E	MS
7440-43-9	Cadmium	4.1		*NE	MS
7440-70-2	Calcium				
7440-47-3	Chromium	1.6	J	*	MS
7440-48-4	Cobalt	17.0		E	MS
7440-50-8	Copper	110.		NE	MS
7439-89-6	Iron				
7439-92-1	Lead	255.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	2410		D*	MS
7439-97-6	Mercury				
7440-02-0	Nickel	3.3		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.21	J	N	MS
7440-22-4	Silver	0.22	J	N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.26	J		MS
7440-62-2	Vanadium	13.4		*	MS
7440-66-6	Zinc	2470		D*E	MS
57-12-5	Cyanide				

Color Before: RED Clarity Before: Texture: MEDIUM

Clarity Before:

Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Clarity After: CLEAR

Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F9

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35E5
 Matrix: Soil Lab Sample ID: 1030768015
 % Solids: 76.1 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8860			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	2020			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	67200	D		P
7439-92-1	Lead				
7439-95-4	Magnesium	5080			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	933.	E		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	62.4	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J + ✓
6570 ✓
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35F9

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35E5
 Matrix: Soil Lab Sample ID: 1030768015
 % Solids: 76.1 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.41	J	N	MS
7440-38-2	Arsenic	34.0		E	MS
7440-39-3	Barium	191.		*	MS
7440-41-7	Beryllium	0.46	J	E	MS
7440-43-9	Cadmium	2.0		*NE	MS
7440-70-2	Calcium				
7440-47-3	Chromium	7.0		*	MS
7440-48-4	Cobalt	5.5		E	MS
7440-50-8	Copper	76.4		NE	MS
7439-89-6	Iron				
7439-92-1	Lead	361.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	804.		D*	MS
7439-97-6	Mercury				
7440-02-0	Nickel	3.6		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.1	J	N	MS
7440-22-4	Silver	1.4		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.36	J		MS
7440-62-2	Vanadium	45.2		*	MS
7440-66-6	Zinc	478.		*E	MS
57-12-5	Cyanide				

1.3 U ✓
J ✓
J ✓
J ✓
0.66 U ✓
J ✓
J ✓
J ✓
J ✓ K A 3/9/11
3.3 U ✓ J ✓
J ✓ ✓
0.66 U ✓
J ✓ K A 3/9/11
J ✓ K A 3/9/11
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35G0

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: SDG No.: MH35E5
 Matrix: Soil Lab Sample ID: 1030768016
 % Solids: 73.1 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10400			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1350			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	37000			P
7439-92-1	Lead				
7439-95-4	Magnesium	3850			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1310		E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	56.6	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J+ *SL*
6840 *W*
2/18/11

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35G0

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAAC Case No.: 40755

Mod. Ref. No.: SDG No.: MH35E5

Matrix: Soil

Lab Sample ID: 1030768016

% Solids: 73.1

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.42	J	N	MS
7440-38-2	Arsenic	46.9		DE	MS
7440-39-3	Barium	314.		*	MS
7440-41-7	Beryllium	0.96	J	DE	MS
7440-43-9	Cadmium	0.35	J	*NE	MS
7440-70-2	Calcium				
7440-47-3	Chromium	7.8		D*	MS
7440-48-4	Cobalt	14.8		DE	MS
7440-50-8	Copper	77.1		DNE	MS
7439-89-6	Iron				
7439-92-1	Lead	342.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	1560		D*	MS
7439-97-6	Mercury				
7440-02-0	Nickel	7.5		DE	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.1	J	DN	MS
7440-22-4	Silver	1.5		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.75			MS
7440-62-2	Vanadium	48.6		D*	MS
7440-66-6	Zinc	144.		D*E	MS
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: S Texture: MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35G1

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35E5
 Matrix: Soil Lab Sample ID: 1030768017
 % Solids: 26.3 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5070			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1150	J		P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	341000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	2130			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1160	J	E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	77.5	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

1900 U *JK*

1900 U *JK*

1900 U *JK*

2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35G1

Lab Name: ALS Laboratory Group Contract: EPW09036

Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: SDG No.: MH35E5

Matrix: Soil Lab Sample ID: 1030768017

% Solids: 26.3 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	1.4	J	N	MS
7440-38-2	Arsenic	115.		E	MS
7440-39-3	Barium	80.6		*	MS
7440-41-7	Beryllium	0.29	J	E	MS
7440-43-9	Cadmium	0.45	J	*NE	MS
7440-70-2	Calcium				
7440-47-3	Chromium	6.2		*	MS
7440-48-4	Cobalt	2.1		E	MS
7440-50-8	Copper	112.		NE	MS
7439-89-6	Iron				
7439-92-1	Lead	1700			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	540.		*	MS
7439-97-6	Mercury				
7440-02-0	Nickel	2.3		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.63	J	N	MS
7440-22-4	Silver	4.1		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.43	J		MS
7440-62-2	Vanadium	96.9		*	MS
7440-66-6	Zinc	177.		*E	MS
57-12-5	Cyanide				

Color Before: ORANGE Clarity: Before: Texture: MEDIUM

Clarity::Before:

Texture: MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts:

Clarity After: CLEAR

Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35G2

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35E5
 Matrix: Soil Lab Sample ID: 1030768018
 % Solids: 63.9 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6160			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	867.			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	57100			P
7439-92-1	Lead				
7439-95-4	Magnesium	2360			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1350		E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	100.	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J+ M
782 U M
2/18/1

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35G2

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATA C Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35E5
 Matrix: Soil Lab Sample ID: 1030768018
 % Solids: 63.9 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.44	J	N	MS
7440-38-2	Arsenic	24.3		E	MS
7440-39-3	Barium	226.		*	MS
7440-41-7	Beryllium	0.47	J	E	MS
7440-43-9	Cadmium	0.44	J	*NE	MS
7440-70-2	Calcium				
7440-47-3	Chromium	6.9		*	MS
7440-48-4	Cobalt	2.9		E	MS
7440-50-8	Copper	47.8		NE	MS
7439-89-6	Iron				
7439-92-1	Lead	304.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	407.		*	MS
7439-97-6	Mercury				
7440-02-0	Nickel	2.8		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	2.0	J	N	MS
7440-22-4	Silver	1.9		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.80			MS
7440-62-2	Vanadium	56.3		*	MS
7440-66-6	Zinc	131.		*E	MS
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35G3

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATA C Case No.: 40755

Mod. Ref. No.: SDG No.: MH35E5

Matrix: Soil

Lab Sample ID: 1030768019

% Solids: 78.6

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7840			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1120			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	33000			P
7439-92-1	Lead				
7439-95-4	Magnesium	6800			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	510.	J	E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	25.2	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

636 U. S.

636 v. 82

2/18/11

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35G3

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATA C Case No.: 40755

Mod. Ref. No.: SDG No.: MH35E5

Matrix: Soil

Lab Sample ID: 1030768019

% Solids: 78.6

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.59	J	N	MS
7440-38-2	Arsenic	37.7		E	MS
7440-39-3	Barium	95.5		*	MS
7440-41-7	Beryllium	0.46	J	E	MS
7440-43-9	Cadmium	17.5		*NE	MS
7440-70-2	Calcium				
7440-47-3	Chromium	7.9		*	MS
7440-48-4	Cobalt	9.3		E	MS
7440-50-8	Copper	159.		NE	MS
7439-89-6	Iron				
7439-92-1	Lead	847.		D	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	1200		D*	MS
7439-97-6	Mercury				
7440-02-0	Nickel	7.1		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.92	J	N	MS
7440-22-4	Silver	2.9		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.42	J		MS
7440-62-2	Vanadium	65.9		*	MS
7440-66-6	Zinc	4910		D*E	MS
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: COARSE

Clarity Before:

Texture: COARSE

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Clarity After: CLEAR

Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35G4

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35E5
 Matrix: Soil Lab Sample ID: 1030768020
 % Solids: 61.5 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6640			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1050			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	81600		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	3090			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1230		E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	94.7	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J + Z
8130 Z
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35G4

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAAC Case No.: 40755 Mod. Ref. No.: SDG No.: MH35E5
 Matrix: Soil Lab Sample ID: 1030768020
 % Solids: 61.5 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.33	J	N	MS
7440-38-2	Arsenic	34.7		E	MS
7440-39-3	Barium	250.		*	MS
7440-41-7	Beryllium	0.56	J	E	MS
7440-43-9	Cadmium	2.7		*NE	MS
7440-70-2	Calcium				
7440-47-3	Chromium	9.9		*	MS
7440-48-4	Cobalt	6.4		E	MS
7440-50-8	Copper	60.0		NE	MS
7439-89-6	Iron				
7439-92-1	Lead	346.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	1380		D*	MS
7439-97-6	Mercury				
7440-02-0	Nickel	4.7		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	2.0	J	N	MS
7440-22-4	Silver	1.7		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.90			MS
7440-62-2	Vanadium	72.2		*	MS
7440-66-6	Zinc	693.		*E	MS
57-12-5	Cyanide				

Color Before: ORANGE Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

COPY

REGION VIII
DATA VALIDATION REPORT
INORGANIC

Case/TDD No.	Site Name		Operable Unit	
40755 / 1008-16	Upper Animas Mining District			
Sabrina Forrest				
RPM/OSC Name	Contractor Laboratory	Contract No.	SDG No.	Laboratory DPO/Region
	ALS Laboratory Group	EPW05026	MH35G5	

Review Assigned Date: December 15, 2010 Data Validator: Fred Luck
 Review Completion Date: February 18, 2011 Report Reviewer: Lesley Boyd

Sample ID	Matrix	Analysis
MH35G5	Sediment	CLP -Metals
MH35G6		
MH35G7		
MH35G8		
MH35G9		
MH35H0		
MH35H1		
MH35H2		
MH35H3		
MH35H4		
MH35H5		
MH35H6		
MH35H8	Mine Sediment	
MH35H9		

Sample ID	Matrix	Analysis
MH35J0	Sediment	CLP -Metals
MH35J1		
MH35J2	Mine Sediment	
MH35J3	Sediment	
MH35J4	Soil - Surface	
MH35J5		

DATA QUALITY STATEMENT

- () Data are ACCEPTABLE according to EPA Functional guidelines with no qualifiers (flags) added by the reviewer.
() Data are UNACCEPTABLE according to EPA Functional Guidelines.
(X) Data are acceptable with QUALIFICATIONS noted in review.

Telephone/Communication Logs Enclosed? Yes _____ No X _____

CLP Project Officer Attention Required? Yes _____ No X _____ If yes, list the items that require attention:

INORGANIC DATA VALIDATION REPORT**REVIEW NARRATIVE SUMMARY**

This data package was reviewed according to "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review," January 2010.

Raw data were reviewed for completeness and transcription accuracy onto the summary forms. Approximately 10-15% of the results reported in each of the samples, calibrations, and QC analyses were recalculated and verified. If problems were identified during the recalculation of results, a more thorough calculation check was performed.

The data package, Case No. 40755, SDG No. MH35G5, consisted of twenty sediment / mine sediment / soil -surface samples for metals by ICP-AES and ICP-MS (ISM01.2). The following table lists the data qualifiers added to the sample analyses. Please see Data Qualifier Definitions, attached to the end of this report.

Sample ID	Elements	Qualifiers	Reason for Qualification	Review Section
MH35G5, MH35G6, MH35G7, MH35G8, MH35G9, MH35H1, MH35H2, MH35H3, MH35H4, MH35H5, MH35H6, MH35H9, MH35J0, MH35J1, MH35J2, MH35J3, MH35J4, MH35J5	Antimony	U	Blank Contamination	3
MH35G5, MH35G6, MH35G7, MH35G9, MH35H0, MH35H1, MH35H2, MH35H3, MH35H4, MH35H5, MH35H6, MH35H8, MH35H9, MH35J1, MH35J2, MH35J3, MH35J4, MH35J5	Beryllium			
MH35G6, MH35G7, MH35G8, MH35G9, MH35H1, MH35H2, MH35H3, MH35H4, MH35H5, MH35H8, MH35H9, MH35J1, MH35J2, MH35J3, MH35J5	Cadmium			
MH35G5, MH35G7, MH35G9, MH35H2, MH35H4, MH35H5, MH35H6, MH35J1, MH35J2	Calcium			
MH35H9	Chromium			
MH35G7, MH35G9, MH35H0, MH35H8, MH35H9	Cobalt			
MH35G7, MH35G9, MH35H0, MH35H2, MH35H4, MH35H8, MH35H9, MH35J1, MH35J2	Magnesium			
MH35G7, MH35H0, MH35H8, MH35H9	Nickel			

Sample ID	Elements	Qualifiers	Reason for Qualification	Review Section
MH35G5, MH35G7, MH35G9, MH35H0, MH35H1, MH35H2, MH35H3, MH35H4, MH35H6, MH35H8, MH35H9, MH35J0, MH35J1, MH35J2, MH35J3	Potassium	U	Blank Contamination	3
MH35G5, MH35G6, MH35G7, MH35G8, MH35G9, MH35H0, MH35H1, MH35H2, MH35H3, MH35H4, MH35H5, MH35H6, MH35H8, MH35H9, MH35J0, MH35J1, MH35J2, MH35J3, MH35J4, MH35J5	Selenium			
MH35G7, MH35G8, MH35H1, MH35H8, MH35H9, MH35J2, MH35J3	Silver			
MH35G5, MH35G6, MH35G7, MH35G8, MH35G9, MH35H0, MH35H1, MH35H2, MH35H3, MH35H4, MH35H5, MH35H6, MH35H8, MH35H9, MH35J0, MH35J1, MH35J2, MH35J3, MH35J4, MH35J5	Sodium			
MH35G5, MH35G7, MH35G8, MH35G9, MH35H0, MH35H2, MH35H3, MH35H4, MH35H6, MH35H8, MH35H9, MH35J0, MH35J1, MH35J2, MH35J3, MH35J4, MH35J5	Thallium			
MH35G8, MH35J0	Beryllium	J+	Potentially false positive detection in ICS check sample	4
MH35G6, MH35G8, MH35H5, MH35J4, MH35J5	Potassium			
All Samples	Thallium	UJ	Potentially false negative detection in ICS check sample	
	Selenium, Zinc	J-/ UJ	MS 30 - 74%R, Post Digestion Spike %R < 75%	7
	Antimony, Silver	J /UJ	MS <30%R, Post Digestion Spike %R ≥ 75%	
	Arsenic, Beryllium, Cadmium, Chromium, Copper, Manganese, Nickel, Zinc	J	Serial Dilution %D > 10%	8

1. PRESERVATION AND HOLDING TIMES

All technical holding times and preservation criteria were met.

Yes No X

Comments: The samples were analyzed within 180 days for the ICP metals. According to the Sample Log-In Sheet and case narrative, the two sample coolers were each received at a temperature of 7°C, which is outside the recommended temperature range of $4 \pm 2^\circ\text{C}$. The Sample Log-In Sheet further indicates that neither cooler contained a Cooler Temperature Indicator Bottle, as indicated on the form to be required. There is also no indication that SMO was contacted regarding this issue, neither is any documentation of the resolution or indication of how the cooler temperature was derived provided.

When the sample preservation criteria are not met, but the sample analysis and extraction are within the technical holding times then professional judgment is used whether to qualify the data. No action was taken since the preservation exceedence was minimal and the extraction and holding times were well within the established parameters.

No other shipping or receiving problems were noted. Chain-of-custody, summary forms, and raw data were evaluated.

2. INSTRUMENT CALIBRATIONS: INITIAL AND CONTINUING CALIBRATION VERIFICATION (ICV AND CCV)

The initial and continuing calibration verification standards (ICV and CCV, respectively) met SOW requirements.

Yes X No

Comments: None.

The calibration verification results were within 90-110% recovery for metals, 85-115% for cyanide, and 80-120% for mercury.

Yes X No

Comments: None.

The continuing calibration standards were run at 10% frequency or every two hours.

Yes X No

Comments: None.

3. BLANKS

The initial and continuing calibration blanks (ICB and CCB, respectively) met SOW requirements.

Yes X No _____

Comments: For the ICP-AES analyses, the ICB was rerun.

The continuing calibration blanks were run at 10% frequency.

Yes X No _____

Comments: Continuing calibration blanks were run every 10 samples.

A laboratory/preparation blank was run at the frequency of one per twenty samples, or per sample delivery group (whichever is more frequent), and for each matrix analyzed.

Yes X No _____

Comments: None.

All analyzed blanks were free of contamination.

Yes _____ No X

Comments: The following table lists the blanks with contamination that resulted in sample qualification, elements present, affected samples, and data qualifiers:

Blank Contaminants

Blank ID	Contam-inant	CRQL (mg/Kg)	MDL (mg/Kg)	Concentration Found in Blank (mg/Kg)	Associated Samples	Concentration Found in Sample (mg/Kg)	Qualifier/ Adjustment
PB	Antimony	1	0.0097	0.017	MH35G5 MH35G6 MH35G7 MH35G8 MH35G9 MH35H1 MH35H2 MH35H3 MH35H4 MH35H5 MH35H6 MH35H9 MH35J0 MH35J1 MH35J2 MH35J3 MH35J4 MH35J5	0.44 0.82 1.1 0.14 1.8 0.46 0.65 0.20 0.74 0.47 1.6 1.2 0.29 1.0 1.7 0.51 0.94 0.14	1.3 U 1.6 U 2.8 U 1.3 U 3.0 U 3.2 U 2.7 U 1.3 U 2.8 U 2.2 U 2.7 U 2.9 U 1.7 U 3.0 U 3.1 U 3.5 U 1.3 U 1.2 U
PB	Beryllium	0.5	0.0032	0.013	MH35G5 MH35G6 MH35G7 MH35G9 MH35H0 MH35H1 MH35H2 MH35H3 MH35H4 MH35H5 MH35H6 MH35H8 MH35H9 MH35J1 MH35J2 MH35J3 MH35J4 MH35J5	0.25 0.38 0.13 0.74 0.37 1.1 0.33 0.23 0.41 0.44 0.52 0.26 1.2 0.26 0.13 1.6 0.48 0.44	0.63 U 0.79 U 1.4 U 1.5 U 1.1 U 1.6 U 1.4 U 0.64 U 1.4 U 1.1 U 1.4 U 1.7 U 1.5 U 1.5 U 1.5 U 0.64 U 0.60 U
PB	Cadmium	0.5	0.0027	0.004	MH35G6 MH35G7 MH35G8 MH35G9 MH35H1 MH35H2 MH35H3 MH35H4 MH35H5 MH35H8 MH35H9 MH35J1 MH35J2 MH35J3 MH35J5	0.73 0.11 0.42 1.2 1.1 0.58 0.51 0.50 0.70 0.12 0.74 0.28 1.2 1.1 0.11	0.79 U 1.4 U 0.64 U 1.5 U 1.6 U 1.4 U 0.64 U 1.4 U 1.1 U 1.7 U 1.5 U 1.5 U 1.5 U 1.5 U 0.60 U

Blank ID	Contaminant	CRQL (mg/Kg)	MDL (mg/Kg)	Concentration Found in Blank (mg/Kg)	Associated Samples	Concentration Found in Sample (mg/Kg)	Qualifier/Adjustment
PB	Calcium	500	1.7	1.957	MH35G5 MH35G7 MH35G9 MH35H2 MH35H4 MH35H5 MH35H6 MH35J1 MH35J2	195 1110 1390 1330 1110 859 1270 1070 729	627 U 1380 U 1500 U 1370 U 1410 U 1100 U 1370 U 1510 U 1530 U
PB	Chromium	1	0.026	0.060	MH35H9	0.62	2.9 U
PB	Cobalt	1	0.0053	0.500	MH35G7 MH35G9 MH35H0 MH35H8 MH35H9	1.4 2.3 1.1 1.1 0.62	2.8 U 3.0 U 2.2 U 3.4 U 2.9 U
PB	Magnesium	500	1.2	2.721	MH35G7 MH35G9 MH35H0 MH35H2 MH35H4 MH35H8 MH35H9 MH35J1 MH35J2	753 646 791 1150 941 1460 327 1020 1040	1380 U 1500 U 1120 U 1370 U 1410 U 1680 U 1460 U 1510 U 1530 U
PB	Nickel	0.5	0.013	0.500	MH35G7 MH35H0 MH35H8 MH35H9	0.99 1.1 1.1 0.59	1.4 U 1.1 U 1.7 U 1.5 U
PB	Potassium	500	5.8	-8.872	MH35G5 MH35G7 MH35G9 MH35H0 MH35H1 MH35H2 MH35H3 MH35H4 MH35H6 MH35H8 MH35H9 MH35J0 MH35J1 MH35J2 MH35J3	606 498 514 504 817 729 297 730 956 583 268 703 1020 373 974	627 U 1380 U 1500 U 1120 U 1580 U 1370 U 638 U 1410 U 1370 U 1680 U 1460 U 825 U 1510 U 1530 U 1740 U
PB	Selenium	2.5	0.036	2.500	MH35G5 MH35G6 MH35G7 MH35G8 MH35G9 MH35H0 MH35H1 MH35H2 MH35H3 MH35H4 MH35H5 MH35H6	1.5 1.8 0.78 1.0 1.0 0.83 1.3 0.83 0.92 0.69 1.6 1.1	3.1 U 4.0 U 6.9 U 3.2 U 7.5 U 5.6 U 7.9 U 6.9 U 3.2 U 7.1 U 5.5 U 6.9 U

Blank ID	Contaminant	CRQL (mg/Kg)	MDL (mg/Kg)	Concentration Found in Blank (mg/Kg)	Associated Samples	Concentration Found in Sample (mg/Kg)	Qualifier/Adjustment
PB	Selenium	2.5	0.036	2.500	MH35H8 MH35H9 MH35J0 MH35J1 MH35J2 MH35J3 MH35J4 MH35J5	2.4 0.34 0.32 1.5 0.23 1.2 0.85 0.62	8.4 U 7.3 U 4.1 U 7.6 U 7.6 U 8.7 U 3.2 U 3.0 U
PB	Silver	0.5	0.0023	0.015	MH35G7 MH35G8 MH35H1 MH35H8 MH35H9 MH35J2 MH35J3	0.38 0.48 1.4 0.29 0.88 0.84 0.56	1.4 U 0.64 U 1.6 U 1.7 U 1.5 U 1.5 U 1.7 U
PB	Sodium	500	0.73	17.117	MH35G5 MH35G6 MH35G7 MH35G8 MH35G9 MH35H0 MH35H1 MH35H2 MH35H3 MH35H4 MH35H5 MH35H6 MH35H8 MH35H9 MH35J0 MH35J1 MH35J2 MH35J3 MH35J4 MH35J5	26.2 72.1 53.5 72.2 38.4 33.9 44.5 53.0 20.8 73.1 102 78.6 141 28.6 25.2 90.9 30.5 88.4 77.9 81.2	627 U 795 U 1380 U 640 U 1500 U 1120 U 1580 U 1370 U 638 U 1410 U 1100 U 1370 U 1680 U 1460 U 825 U 1510 U 1530 U 1740 U 640 U 605 U
PB	Thallium	0.5	0.0015	0.500	MH35G5 MH35G6 MH35G7 MH35G8 MH35G9 MH35H0 MH35H1 MH35H2 MH35H3 MH35H4 MH35H5 MH35H6 MH35H8 MH35H9 MH35J0 MH35J1 MH35J2 MH35J3 MH35J4 MH35J5	0.45 0.64 0.12 0.31 0.19 0.11 0.77 0.33 0.23 0.33 0.61 0.41 0.070 0.017 0.39 0.31 0.25 0.50 0.31 0.33	0.63 U 0.79 U 1.4 U 0.64 U 1.5 U 1.1 U 1.6 U 1.4 U 0.64 U 1.4 U 1.1 U 1.4 U 1.7 U 1.5 U 0.83 U 1.5 U 1.5 U 1.7 U 0.64 U 0.60 U

4. INDUCTIVELY COUPLED PLASMA - INTERFERENCE CHECK SAMPLE (ICP-ICS)

The ICP interference check sample (ICS) was run at the beginning and end of each sample analysis run and every 20 analytical samples, but not prior to the ICV.

Yes X No _____

Comments: None.

Percent recovery of the analytes in the ICS solutions were within the range of 80-120% or the result was within \pm the CRQL.

Yes _____ No X

Comments: For Sodium, the ICP-AES Interference Check Sample Results exceeded the True Values by approximately 2.0 times the CRQL, this analysis was repeated with similar results. Results for all samples for Sodium analyses, have already been flagged 'U' due to blank contamination therefore no further qualification is applied due to the ICP-AES ICS result.

Sample results for aluminum, calcium, iron, and magnesium were less than the ICSA values or no interference was noted.

Yes X No _____ NA _____

Comments: None.

Sample results contain potential false positives and false negatives.

Yes X No _____

Comments: The following table lists the elements with potential false positives or false negatives that resulted in sample qualification, affected samples, and data qualifiers:

ICP Interferences

Element	Concentration Found in ICSA Sample ($\mu\text{g/L}$)	Affected Samples	Concentration Found in Sample (mg/Kg)	Qualifier/ Adjustment
Beryllium	0.36	MH35G8 MH35J0	>MDL	J+
Potassium	494	MH35G6 MH35G8 MH35H5 MH35J4 MH35J5		
Thallium	-0.05	All samples	All concentrations	UJ

5. LABORATORY CONTROL SAMPLE

The laboratory control sample (LCS) was prepared and analyzed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No _____

Comments: None.

All results were within control limits OF 70-130%.

Yes X No _____

Comments: None.

6. FORM 6 & 12 - DUPLICATE SAMPLE ANALYSIS

Duplicate sample analysis was performed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No _____ NA _____

Comments: None.

The RPDs were calculated correctly.

Yes X No _____ NA _____

Comments: None.

For sample concentrations greater than five times the CRQL, RPDs were within 20% (limits of 35% apply for soil/sediments/tailings samples).

Yes X No NA

Comments: None.

For sample concentrations less than five times the CRQL, duplicate analysis results were within the control window of CRQL (absolute difference < CRQL for soils).

Yes X No NA

Comments: None.

7. SPIKE SAMPLE ANALYSIS

A matrix spike sample was analyzed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No NA

Comments: None.

The percent recoveries (%Rs) were calculated correctly.

Yes X No NA

Comments: None.

Spike recoveries were within the range of 75-125% (an exception is granted where the sample concentration is four times the spike concentration).

Yes No X

Comments: The following table lists the spike recoveries outside control limits, post digestion spike recoveries, samples affected, and data qualifiers:

Element	Matrix Spike %R	Post-Digestion %R	Samples Affected	Qualifiers
Antimony	12%	84%	All samples	J/UJ
Selenium	60%	63%		J-/UJ
Silver	6%	85%		J/UJ
Zinc	40%	68%		J-/UJ

A post-digest spike was performed for those elements that did not meet the specified criteria (i.e., Pre-digestion/pre-distillation spike recovery falls outside of control limits and sample result is less than four times the spike amount added, exception: Ag, Hg).

Yes X No _____ NA _____

Comments: None.

8. ICP SERIAL DILUTION

A serial dilution was performed for ICP analysis with every twenty or fewer samples of a similar matrix, or one per sample delivery group, whichever is more frequent.

Yes X No _____

Comments: None.

The serial dilution was without interference problems as defined by the SOW.

Yes _____ No X

Comments: The following serial dilution %Ds were greater than 10% and the original sample result was at least 50* the MDL:

Element	% Difference	Samples Affected	Qualifiers
Arsenic	22%		
Beryllium	28%		
Cadmium	13%		
Chromium	12%		
Copper	21%		
Manganese	12%		
Nickel	90%		
Zinc	34%		

9. ICP-MS

The ICP MS tune met SOW requirements.

Yes X No _____ NA _____

Comments: The ICP MS instrument was correctly tuned prior to analysis and all tuning criteria were met.

The minimum number of internal standards were added to the analyses and bracketed the target analyte masses.

Yes X No _____

Comments: None.

All percent relative intensities were within 60-125%.

Yes X No _____

Comments: None.

10. REGIONAL QUALITY ASSURANCE (QA) AND QUALITY CONTROL (QC)

Regional QA/QC was conducted as initiated by the EPA Region 8.

Yes _____ No _____ NA X

Comments: The SDG shows no indication of EPA Region 8 initiating any additional QA/QC.

11. FORM 10 - INTERELEMENT CORRECTION FACTORS FOR ICP

Interelement corrections for ICP were reported.

Yes X No _____

Comments: None.

12. FORM 12 - PREPARATION LOG

Information on the preparation of samples for analysis was reported on Form 12.

Yes X No _____

Comments: None.

13. FORM 13 - ANALYSIS RUN LOG

A Form 13 with the required information was filled out for each analysis run in the data package.

Yes X No _____

Comments: None.

14. Additional Comments or Problems/Resolutions Not Addressed Above

Page 1 of the Evidence Audit Checklist (EAC) indicates three airbills are associated with this SDG, however documentation is only provided for Airbill Number 3430, which documents the shipment of four packages. The laboratory only documented receipt of two coolers, so it is unclear as to what the other two packages were that were included on the airbill.

INORGANIC DATA QUALITY ASSURANCE REVIEW**Region VIII****DATA QUALIFIER DEFINITIONS**

For the purpose of Data Validation, the following code letters and associated definitions are provided for use by the data validator to summarize the data quality. Use of additional qualifiers should be carefully considered. Definitions for all qualifiers used should be provided with each report.

GENERAL QUALIFIERS for use with both INORGANIC and ORGANIC DATA

- R - Reported value is "rejected." The data are unusable. Resampling or reanalysis may be necessary to verify the presence or absence of the compound.
- J - The associated numerical value is an estimated quantity and is the approximate concentration of the analyte in the sample.
- J+ - The associated numerical value is an estimated quantity but the result may be biased high.
- J- - The associated numerical value is an estimated quantity but the result may be biased low.
- U J - The reported quantitation limit is estimated because Quality Control criteria were not met. Element or compound may or may not be present in the sample.
- N J - Estimated value of a tentatively identified compound. (Identified with a CAS number.)
ORGANICS analysis only.
- U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

ACRONYMS

AA	Atomic Absorption
Ag	Silver
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
CRA	CRQL standard required for AA
CRQL	Contract Required Quantitation Limit
CRI	CRQL standard required for ICP
CV	Cold Vapor
EPA	U.S. Environmental Protection Agency
GFAA	Graphite Furnace Atomic Absorption
Hg	Mercury
ICB	Initial Calibration Blank
ICP	Inductively Coupled Plasma
ICS	Interference Check Sample
ICSA	Interference Check Sample (Solution A)
ICSAB	Interference Check Sample (Solution AB)
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LRA	Linear Range Verification Analysis
MDL	Method Detection Limit
PDS	Post Digestion Spike
QC	Quality Control
RPD	Relative Percent Difference
RPM	Regional Project Manager
RSD	Percent Relative Standard Deviation
SA	Spike Added
SAS	Special Analytical Services
SDG	Sample Delivery Group
SOW	Statement of Work
SR	Sample Result
SSR	Spiked Sample Result

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35G5

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATA C Case No.: 40755

Mod. Ref. No.: . SDG No.: MH35G5

Matrix: Soil

Lab Sample ID: 1030769001

% Solids: 79.8

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3730			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	195.	J		P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	53500			P
7439-92-1	Lead				
7439-95-4	Magnesium	2030			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	606.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	26.2	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

6270th

627 v⁷

6270ⁿ

Color Before: ORANGE Clarity Before: Texture: COARSE

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35G6

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769002
 % Solids: 62.9 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.82	J	N	MS
7440-38-2	Arsenic	44.2		E	MS
7440-39-3	Barium	443.			MS
7440-41-7	Beryllium	0.38	J	E	MS
7440-43-9	Cadmium	0.73	J	E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	4.6		E	MS
7440-48-4	Cobalt	3.5			MS
7440-50-8	Copper	35.8		E	MS
7439-89-6	Iron				
7439-92-1	Lead	372.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	344.		E	MS
7439-97-6	Mercury				
7440-02-0	Nickel	2.7		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.8	J	N	MS
7440-22-4	Silver	2.2		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.64	J		MS
7440-62-2	Vanadium	37.2			MS
7440-66-6	Zinc	179.		NE	MS
57-12-5	Cyanide				

Color Before: ORANGE Clarity Before: _____ Texture: MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35G6

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769002
 % Solids: 62.9 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4750			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	854.			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	73000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	1890			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1150			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	72.1	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J + M
7950 N
2/18/11

Color Before: ORANGE Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35G7

Lab Name: ALS Laboratory Group Contract: EPW09036
Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
Matrix: Soil Lab Sample ID: 1030769005
% Solids: 36.2 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	1.1	J	N	MS
7440-38-2	Arsenic	36.7		E	MS
7440-39-3	Barium	30.7			MS
7440-41-7	Beryllium	0.13	J	E	MS
7440-43-9	Cadmium	0.11	J	E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	5.1		E	MS
7440-48-4	Cobalt	1.4	J		MS
7440-50-8	Copper	113.		E	MS
7439-89-6	Iron				
7439-92-1	Lead	136.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	156.		E	MS
7439-97-6	Mercury				
7440-02-0	Nickel	0.99	J	E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.78	J	N	MS
7440-22-4	Silver	0.38	J	N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.12	J		MS
7440-62-2	Vanadium	27.8			MS
7440-66-6	Zinc	44.1		NE	MS
57-12-5	Cyanide				

Color Before: ORANGE Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35G7

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATA C Case No.: 40755

Mod. Ref. No.: _____ SDG No.: MH35G5

Matrix: Soil

Lab Sample ID: 1030769005

% Solids: 36.2

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2020			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1110			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	397000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	753.	J		P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	498.	J		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	53.5	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

1380 v 7th

1380 U. N.

1380 U 71

1380 U^n
2/18/04

Color Before: ORANGE Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35G8

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769006
 % Solids: 78.1 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.14	J	N	MS
7440-38-2	Arsenic	11.6		E	MS
7440-39-3	Barium	78.8			MS
7440-41-7	Beryllium	0.66		E	MS
7440-43-9	Cadmium	0.42	J	E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	6.2		E	MS
7440-48-4	Cobalt	6.5			MS
7440-50-8	Copper	65.0		E	MS
7439-89-6	Iron				
7439-92-1	Lead	145.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	839.		DE	MS
7439-97-6	Mercury				
7440-02-0	Nickel	4.2		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.0	J	N	MS
7440-22-4	Silver	0.48	J	N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.31	J		MS
7440-62-2	Vanadium	52.2			MS
7440-66-6	Zinc	145.		NE	MS
57-12-5	Cyanide				

1,3 UJ *7*
J *7*
J+ *7*
0.64 UJ *7*
J *7*
J *7*
J *7*
J *7*
J *7*
J *7*
3.2 UJ *7*
0.64 UJ *7*
0.64 UJ *7*
J- *7*
2/18/11

Color Before: ORANGE Clarity Before: _____ Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35G8

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATA C Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769006
 % Solids: 78.1 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8370			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1230			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	34800			P
7439-92-1	Lead				
7439-95-4	Magnesium	1460			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	902.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	72.2	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J+ 71
640 v 71
2/18/14

Color Before: ORANGE Clarity Before: _____ Texture: COARSE

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35G9

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769007
 % Solids: 33.3 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	1.8	J	N	MS
7440-38-2	Arsenic	24.5		E	MS
7440-39-3	Barium	36.1			MS
7440-41-7	Beryllium	0.74	J	E	MS
7440-43-9	Cadmium	1.2	J	E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	6.1		E	MS
7440-48-4	Cobalt	2.3			MS
7440-50-8	Copper	147.		E	MS
7439-89-6	Iron				
7439-92-1	Lead	773.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	489.		E	MS
7439-97-6	Mercury				
7440-02-0	Nickel	2.0		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.0	J	N	MS
7440-22-4	Silver	8.5		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.19	J		MS
7440-62-2	Vanadium	34.0			MS
7440-66-6	Zinc	465.		NE	MS
57-12-5	Cyanide				

3.0UJ M
J M
1.5UJ M
1.5UJ M
J M
3.0U M
J M
J M
J M
7.5UJ M
J M
1.5UJ M
J M
2/18/14

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35G9

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATA C Case No.: 40755

Mod. Ref. No.: SDG No.: MH35G5

Matrix: Soil

Lab Sample ID: 1030769007

% Solids: 33.3

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3850			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1390			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	218000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	646.	J		P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	514.	J		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	38.4	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

1500 v ^m

1500 u. ^m

1500 v π

1500 u ^m

Color Before: RED Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35HO

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAc

Case No.: 40755

Mod. Ref. No.: _____ SDG No.: MH35G5

Matrix: Soil

Lab Sample ID: 1030769008

% Solids: 44.8

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	2.3		N	MS
7440-38-2	Arsenic	23.2		E	MS
7440-39-3	Barium	46.5			MS
7440-41-7	Beryllium	0.37	J	E	MS
7440-43-9	Cadmium	2.4		E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	4.0		E	MS
7440-48-4	Cobalt	1.1	J		MS
7440-50-8	Copper	112.		E	MS
7439-89-6	Iron				
7439-92-1	Lead	457.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	239.		E	MS
7439-97-6	Mercury				
7440-02-0	Nickel	1.1		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.83	J	N	MS
7440-22-4	Silver	3.9		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.11	J		MS
7440-62-2	Vanadium	31.7			MS
7440-66-6	Zinc	1040		DNE	MS
57-12-5	Cyanide				

Color Before: RED Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35HQ

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAC Case No.: 40755

Mod. Ref. No.: SDG No.: MH35G5

Matrix: Soil

Lab Sample ID: 1030769008

% Solids: 44.8

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

1120.0 ^m

11200 μ

11200ⁿ
2/18/44

Color Before: RED Clarity Before: CLARITY 100% Texture: MEDIUM

Clarity Before: **Texture: MEDIUM**

Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Clarity After: CLEAR Artifacts:

Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35H1

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769009
 % Solids: 31.6 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.46	J	N	MS
7440-38-2	Arsenic	57.5		E	MS
7440-39-3	Barium	200.			MS
7440-41-7	Beryllium	1.1	J	E	MS
7440-43-9	Cadmium	1.1	J	E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	11.9		E	MS
7440-48-4	Cobalt	23.7			MS
7440-50-8	Copper	250.		E	MS
7439-89-6	Iron				
7439-92-1	Lead	1460		D	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	2360		DE	MS
7439-97-6	Mercury				
7440-02-0	Nickel	12.3		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.3	J	N	MS
7440-22-4	Silver	1.4	J	N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.77	J		MS
7440-62-2	Vanadium	62.0			MS
7440-66-6	Zinc	378.		NE	MS
57-12-5	Cyanide				

3.2 UJ ✓
J ✓
1.6 UJ ✓
1.6 UJ ✓
J ✓
J ✓
J ✓
J ✓
7.9 UJ ✓
1.6 UJ ✓
1.6 UJ ✓
J ✓
2/18/11

Color Before: BLACK Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35H1

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769009
 % Solids: 31.6 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8140			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1940			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	65400			P
7439-92-1	Lead				
7439-95-4	Magnesium	2260			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	817.	J		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	44.5	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

1580 U M
1580 U M
2/18/14

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35H2

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769010
 % Solids: 36.4 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.65	J	N	MS
7440-38-2	Arsenic	15.2		E	MS
7440-39-3	Barium	71.6			MS
7440-41-7	Beryllium	0.33	J	E	MS
7440-43-9	Cadmium	0.58	J	E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	6.4		E	MS
7440-48-4	Cobalt	6.8			MS
7440-50-8	Copper	124.		E	MS
7439-89-6	Iron				
7439-92-1	Lead	341.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	2010		DE	MS
7439-97-6	Mercury				
7440-02-0	Nickel	2.2		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.83	J	N	MS
7440-22-4	Silver	4.0		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.33	J		MS
7440-62-2	Vanadium	27.3			MS
7440-66-6	Zinc	242.		NE	MS
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35H2

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769010
 % Solids: 36.4 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4940			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1330			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	159000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	1150			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	729.	J		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	53.0	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

13700 μ

13700 μ

13700 μ

13700 μ

2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35H3

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769011
 % Solids: 78.4 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.20	J	N	MS
7440-38-2	Arsenic	26.2		E	MS
7440-39-3	Barium	51.8			MS
7440-41-7	Beryllium	0.23	J	E	MS
7440-43-9	Cadmium	0.51	J	E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	9.1		E	MS
7440-48-4	Cobalt	4.3			MS
7440-50-8	Copper	42.8		E	MS
7439-89-6	Iron				
7439-92-1	Lead	294.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	624.		DE	MS
7439-97-6	Mercury				
7440-02-0	Nickel	4.1		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.92	J	N	MS
7440-22-4	Silver	0.88		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.23	J		MS
7440-62-2	Vanadium	29.1			MS
7440-66-6	Zinc	145.		NE	MS
57-12-5	Cyanide				

Color Before: YELLOW Clarity Before: _____ Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35H3

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATA C Case No.: 40755

Mod. Ref. No.: SDG No.: MH35G5

Matrix: Soil

Lab Sample ID: 1030769011

% Solids: 78.4

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

638 U ^m
638 U ^m
2/18/u

Color Before: ORANGE Clarity Before: . . . Texture: COARSE

Clarity Before: Texture: COARSE

Texture: COARSE

Color After: YELLOW Clarity After: CLEAR Artifacts:

Clarity After: CLEAR Artifacts:

Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35H4

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769012
 % Solids: 35.4 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.74	J	N	MS
7440-38-2	Arsenic	20.5		E	MS
7440-39-3	Barium	61.9			MS
7440-41-7	Beryllium	0.41	J	E	MS
7440-43-9	Cadmium	0.50	J	E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	4.3		E	MS
7440-48-4	Cobalt	6.0			MS
7440-50-8	Copper	84.0		E	MS
7439-89-6	Iron				
7439-92-1	Lead	362.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	1910		DE	MS
7439-97-6	Mercury				
7440-02-0	Nickel	1.6		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.69	J	N	MS
7440-22-4	Silver	2.3		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.33	J		MS
7440-62-2	Vanadium	29.7			MS
7440-66-6	Zinc	240.		NE	MS
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35H4

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769012
 % Solids: 35.4 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4520			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1110			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	203000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	941.	J		P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	730.	J		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	73.1	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

1410 U π

1410 U π

1410 U π

1410 U π
2/18/11

Color Before: RED Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35H5

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769013
 % Solids: 45.3 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.47	J	N	MS
7440-38-2	Arsenic	20.3		E	MS
7440-39-3	Barium	142.			MS
7440-41-7	Beryllium	0.44	J	E	MS
7440-43-9	Cadmium	0.70	J	E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	6.4		E	MS
7440-48-4	Cobalt	3.2			MS
7440-50-8	Copper	80.7		E	MS
7439-89-6	Iron				
7439-92-1	Lead	875.		D	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	659.		E	MS
7439-97-6	Mercury				
7440-02-0	Nickel	2.9		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.6	J	N	MS
7440-22-4	Silver	2.3		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.61	J		MS
7440-62-2	Vanadium	62.0			MS
7440-66-6	Zinc	206.		NE	MS
57-12-5	Cyanide				

Color Before: ORANGE Clarity Before: _____ Texture: MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35H5

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATA C Case No.: 40755

Mod. Ref. No.: SDG No.: MH35G5

Matrix: Soil

Lab Sample ID: 1030769013

% Solids: 45.3

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6730			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium		.		
7440-43-9	Cadmium				
7440-70-2	Calcium	859.			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	144000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	2820			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1250			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	102.	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

1100 v π

J + N

1100 v^m

2/18/u

Color Before: ORANGE Clarity Before: . Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35H6

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769014
 % Solids: 36.4 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	1.6	J	N	MS
7440-38-2	Arsenic	35.6		E	MS
7440-39-3	Barium	85.9			MS
7440-41-7	Beryllium	0.52	J	E	MS
7440-43-9	Cadmium	2.7		E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	8.0		E	MS
7440-48-4	Cobalt	4.7			MS
7440-50-8	Copper	212.		E	MS
7439-89-6	Iron				
7439-92-1	Lead	2050		D	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	1300		DE	MS
7439-97-6	Mercury				
7440-02-0	Nickel	2.5		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.1	J	N	MS
7440-22-4	Silver	5.0		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.41	J		MS
7440-62-2	Vanadium	37.2			MS
7440-66-6	Zinc	628.		NE	MS
57-12-5	Cyanide				

Color Before: ORANGE Clarity Before: _____ Texture: MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35H6

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769014
 % Solids: 36.4 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5750			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1270			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	266000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	2370			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	956.	J		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	78.6	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

1370 U π

1370 U π

1370 U π
2/18/11

Color Before: ORANGE Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35H8

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769015
 % Solids: 29.7 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	5.6		N	MS
7440-38-2	Arsenic	126.		E	MS
7440-39-3	Barium	21.4			MS
7440-41-7	Beryllium	0.26	J	E	MS
7440-43-9	Cadmium	0.12	J	E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	7.4		E	MS
7440-48-4	Cobalt	1.1	J		MS
7440-50-8	Copper	369.		E	MS
7439-89-6	Iron				
7439-92-1	Lead	59.4			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	130.		E	MS
7439-97-6	Mercury				
7440-02-0	Nickel	1.1	J	E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	2.4	J	N	MS
7440-22-4	Silver	0.29	J	N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.070	J		MS
7440-62-2	Vanadium	88.0			MS
7440-66-6	Zinc	63.3		NE	MS
57-12-5	Cyanide				

Color Before: ORANGE Clarity Before: _____ Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35H8

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769015
 % Solids: 29.7 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4960			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1820			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	519000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	1460			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	583.	J		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	141.	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

1680 U M

1680 U H

1680 U M
2/18/11

Color Before: ORANGE Clarity Before: _____ Texture: COARSE

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35H9

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769016
 % Solids: 34.2 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	1.2	J	N	MS
7440-38-2	Arsenic	43.9		E	MS
7440-39-3	Barium	3.5	J		MS
7440-41-7	Beryllium	1.2	J	E	MS
7440-43-9	Cadmium	0.74	J	E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	0.62	J	E	MS
7440-48-4	Cobalt	0.62	J		MS
7440-50-8	Copper	11.0		E	MS
7439-89-6	Iron				
7439-92-1	Lead	1740		D	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	107.		E	MS
7439-97-6	Mercury				
7440-02-0	Nickel	0.59	J	E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.34	J	N	MS
7440-22-4	Silver	0.88	J	N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.017	J		MS
7440-62-2	Vanadium	12.4			MS
7440-66-6	Zinc	361.		NE	MS
57-12-5	Cyanide				

Color Before: RED Clarity Before: _____ Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35H9

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769016
 % Solids: 34.2 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3170			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1490			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	445000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	327.	J		P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	268.	J		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	28.6	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

1460 U M

1460 U M

1460 U M

2/18/11

Color Before: ORANGE Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35J0

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769017
 % Solids: 60.6 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.29	J	N	MS
7440-38-2	Arsenic	33.3		E	MS
7440-39-3	Barium	92.7			MS
7440-41-7	Beryllium	1.1		E	MS
7440-43-9	Cadmium	1.3		E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	7.6		E	MS
7440-48-4	Cobalt	16.5			MS
7440-50-8	Copper	209.		E	MS
7439-89-6	Iron				
7439-92-1	Lead	711.		D	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	4130		DE	MS
7439-97-6	Mercury				
7440-02-0	Nickel	8.0		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.32	J	N	MS
7440-22-4	Silver	2.1		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.39	J		MS
7440-62-2	Vanadium	64.1			MS
7440-66-6	Zinc	289.		NE	MS
57-12-5	Cyanide				

1.7 U J *n*
 J *n*
 J + *n*
 J *n*
 4.1 U J *n*
 J *n*
 0.83 U J *n*
 J - *n*
 2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35J0

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769017
 % Solids: 60.6 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13700			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1660			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	37300			P
7439-92-1	Lead				
7439-95-4	Magnesium	8730			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	703.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	25.2	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

825 uⁿ
825 uⁿ
2/18/u

Color Before: BROWN Clarity Before: _____ Texture: COARSE

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35J1

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAc Case No.: 40755

Mod. Ref. No.: _____ SDG No.: MH35G5

Matrix: Soil

Lab Sample ID: 1030769018

% Solids: 33.1

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	1.0	J	N	MS
7440-38-2	Arsenic	49.8		E	MS
7440-39-3	Barium	75.6			MS
7440-41-7	Beryllium	0.26	J	E	MS
7440-43-9	Cadmium	0.28	J	E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	7.1		E	MS
7440-48-4	Cobalt	3.9			MS
7440-50-8	Copper	96.7		E	MS
7439-89-6	Iron				
7439-92-1	Lead	421.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	618.		E	MS
7439-97-6	Mercury				
7440-02-0	Nickel	3.6		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.5	J	N	MS
7440-22-4	Silver	2.4		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.31	J		MS
7440-62-2	Vanadium	43.1			MS
7440-66-6	Zinc	98.1		NE	MS
57-12-5	Cyanide				

3.0 UJ ✓
J ✓
1.5 UJ ✓
1.5 UJ ✓
J ✓
J ✓
J ✓
J ✓
7.6 UJ ✓
J ✓
1.5 UJ ✓
J ✓
2/18/u

Color Before: ORANGE Clarity Before: _____ Texture: MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35J1

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769018
 % Solids: 33.1 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3240			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1070	J		P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	300000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	1210	J		P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1020	J		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	90.9	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

Color Before: ORANGE Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35J2

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769019
 % Solids: 32.7 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	1.7	J	N	MS
7440-38-2	Arsenic	49.1		E	MS
7440-39-3	Barium	41.3			MS
7440-41-7	Beryllium	0.13	J	E	MS
7440-43-9	Cadmium	1.0	J	E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	2.2	J	E	MS
7440-48-4	Cobalt	16.6			MS
7440-50-8	Copper	32.8		E	MS
7439-89-6	Iron				
7439-92-1	Lead	419.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	2110		DE	MS
7439-97-6	Mercury				
7440-02-0	Nickel	1.7		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.23	J	N	MS
7440-22-4	Silver	0.84	J	N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.25	J		MS
7440-62-2	Vanadium	12.0			MS
7440-66-6	Zinc	232.		NE	MS
57-12-5	Cyanide				

3,1 U J *n*
 J *n*
 1,5 U J *n*
 1,5 U J *n*
 J *n*
 J *n*
 J *n*
 J *n*
 J *n*
 7,6 U J *n*
 1,5 U J *n*
 1,5 U J *n*
 J- *n*
 2/18/*n*

Color Before: ORANGE Clarity Before: _____ Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35J2

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAAC Case No.: 40755

Mod. Ref. No.: SDG No.: MH35G5

Matrix: Soil

Lab Sample ID: 1030769019

% Solids: 32.7

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2320			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	729.	J		P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	462000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	1040	J		P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	373.	J		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	30.5	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

1530 U ✓

1530 U ✓

1530 U ✓

1530 U ✓
2/18/11

Color Before: ORANGE Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35J3

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769020
 % Solids: 28.6 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.51	J	N	MS
7440-38-2	Arsenic	26.7		E	MS
7440-39-3	Barium	159.			MS
7440-41-7	Beryllium	1.6	J	E	MS
7440-43-9	Cadmium	1.0	J	E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	5.1		E	MS
7440-48-4	Cobalt	18.6			MS
7440-50-8	Copper	216.		E	MS
7439-89-6	Iron				
7439-92-1	Lead	210.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	897.		E	MS
7439-97-6	Mercury				
7440-02-0	Nickel	6.0		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.2	J	N	MS
7440-22-4	Silver	0.56	J	N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.50	J		MS
7440-62-2	Vanadium	31.3			MS
7440-66-6	Zinc	339.		NE	MS
57-12-5	Cyanide				

3.5 UJ H
J H
1.7 UJ H
1.7 UJ H
J H
J H
I H
J H
8.7 UJ H
1.7 UJ H
1.7 UJ H
J- H
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35J3

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769020
 % Solids: 28.6 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	28200			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1950			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	62200			P
7439-92-1	Lead				
7439-95-4	Magnesium	2280			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	974.	J		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	88.4	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

1740 U M

1740 U M
2/18/m

Color Before: BROWN Clarity Before: _____ Texture: COARSE

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35J4

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAAC Case No.: 40755

Mod. Ref. No.: _____ SDG No.: MH35G5

Matrix: Soil

Lab Sample ID: 1030769021

% Solids: 78.1

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.94	J	N	MS
7440-38-2	Arsenic	23.7		E	MS
7440-39-3	Barium	117.			MS
7440-41-7	Beryllium	0.48	J	E	MS
7440-43-9	Cadmium	9.6		E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	8.4		E	MS
7440-48-4	Cobalt	8.0			MS
7440-50-8	Copper	244.		E	MS
7439-89-6	Iron				
7439-92-1	Lead	1820		D	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	1180		DE	MS
7439-97-6	Mercury				
7440-02-0	Nickel	5.8		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.85	J	N	MS
7440-22-4	Silver	5.4		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.31	J		MS
7440-62-2	Vanadium	53.6			MS
7440-66-6	Zinc	2610		DNE	MS
57-12-5	Cyanide				

1.3 UJ N
J N
0.64 UJ N
J N
J N
J N
J N
J N
3.2 UJ N
J N
0.64 UJ N
J N
2/16/N

Color Before: YELLOW Clarity Before: _____ Texture: MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35J4

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769021
 % Solids: 78.1 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13900			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	5910			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	47800			P
7439-92-1	Lead				
7439-95-4	Magnesium	11200			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1070			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	77.9	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J+ *m*
640 U *m*
2/18/*m*

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35J5

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAAC Case No.: 40755

Mod. Ref. No.: _____ SDG No.: MH35G5

Matrix: Soil

Lab Sample ID: 1030769022

% Solids: 82.7

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.14	J	N	MS
7440-38-2	Arsenic	13.5		E	MS
7440-39-3	Barium	113.			MS
7440-41-7	Beryllium	0.44	J	E	MS
7440-43-9	Cadmium	0.11	J	E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	10.		E	MS
7440-48-4	Cobalt	6.8			MS
7440-50-8	Copper	40.6		E	MS
7439-89-6	Iron				
7439-92-1	Lead	241.			MS
7439-95-4	Magnesium				
7439-96-5	Manganese	796.		DE	MS
7439-97-6	Mercury				
7440-02-0	Nickel	6.6		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.62	J	N	MS
7440-22-4	Silver	1.3		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.33	J		MS
7440-62-2	Vanadium	65.3			MS
7440-66-6	Zinc	102.		NE	MS
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: WHITE Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35J5

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: SDG No.: MH35G5
 Matrix: Soil Lab Sample ID: 1030769022
 % Solids: 82.7 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12900			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	2080			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	36900			P
7439-92-1	Lead				
7439-95-4	Magnesium	10700			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1030			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	81.2	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J+ R
605 U H
2/18/11

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

REGION VIII
DATA VALIDATION REPORT
INORGANIC

Case/TDD No.	Site Name	Operable Unit	
40755 / 1008-16	Upper Animas Mining District		
RPM/OSC Name			
Sabrina Forrest			
Contractor Laboratory	Contract No.	SDG No.	Laboratory DPO/Region
ALS Laboratory Group	EPW05026	MH36L0	

Review Assigned Date: December 15, 2010 Data Validator: Fred Luck
 Review Completion Date: February 18, 2011 Report Reviewer: Lesley Boyd

Sample ID	Matrix	Analysis
MH36L0	Sediment	CLP -Metals
MH36L1		
MH36L2		
MH36L3		
MH36L4		
MH36L5	Mine Sediment	
MH36L6	Sediment	
MH36L7		
MH36L8		
MH36L9		

DATA QUALITY STATEMENT

- () Data are ACCEPTABLE according to EPA Functional guidelines with no qualifiers (flags) added by the reviewer.
() Data are UNACCEPTABLE according to EPA Functional Guidelines.
(X) Data are acceptable with QUALIFICATIONS noted in review.

Telephone/Communication Logs Enclosed? Yes _____ No X _____

CLP Project Officer Attention Required? Yes _____ No X _____ If yes, list the items that require attention:

INORGANIC DATA VALIDATION REPORT**REVIEW NARRATIVE SUMMARY**

This data package was reviewed according to "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review," January 2010.

Raw data were reviewed for completeness and transcription accuracy onto the summary forms. Approximately 10-15% of the results reported in each of the samples, calibrations, and QC analyses were recalculated and verified. If problems were identified during the recalculation of results, a more thorough calculation check was performed.

The data package, Case No. 40755, SDG No. MH36L0, consisted of ten sediment / mine sediment samples for metals by ICP-AES and ICP-MS (ISM01.2). The following table lists the data qualifiers added to the sample analyses. Please see Data Qualifier Definitions, attached to the end of this report.

Sample ID	Elements	Qualifiers	Reason for Qualification	Review Section
MH36L0, MH36L1, MH36L2, MH36L3, MH36L4, MH36L5, MH36L7, MH36L8, MH36L9	Antimony	U	Blank Contamination	3
MH36L9	Barium			
MH36L0, MH36L2, MH36L4, MH36L5, MH36L6, MH36L7, MH36L8, MH36L9	Beryllium			
MH36L0, MH36L5, MH36L8, MH36L9	Cadmium			
MH36L2, MH36L4, MH36L5, MH36L9	Calcium			
MH36L5, MH36L9	Chromium			
MH36L5, MH36L9	Cobalt			
MH36L5	Nickel			
MH36L0, MH36L1, MH36L2, MH36L3, MH36L4, MH36L5, MH36L6, MH36L7, MH36L8, MH36L9	Selenium			
MH36L5, MH36L9	Silver			
MH36L1, MH36L3	Beryllium	J+	Potentially false positive detection in ICS check sample	4
All Samples	Potassium			
MH36L0, MH36L1, MH36L2, MH36L3, MH36L4, MH36L6, MH36L7, MH36L8	Silver			
All Samples	Sodium			
	Thallium			

Sample ID	Elements	Qualifiers	Reason for Qualification	Review Section
All Samples	Selenium, Thallium	J- /UJ	MS 30 - 74%R, Post Digestion Spike %R < 75%	7
	Antimony, Silver	J/UJ	MS <30%R, Post Digestion Spike %R ≥ 75%	
	Arsenic, Lead, Potassium, Sodium, Zinc	J	Serial Dilution %D > 10%	8

1. PRESERVATION AND HOLDING TIMES

All technical holding times and preservation criteria were met.

Yes No X

Comments: The samples were analyzed within 180 days for the ICP metals. According to the Sample Log-In Sheet and case narrative, the two sample coolers were each received at a temperature of 7°C, which is outside the recommended temperature range of $4 \pm 2^\circ\text{C}$. The Sample Log-In Sheet further indicates that neither cooler contained a Cooler Temperature Indicator Bottle, as indicated on the form to be required. There is also no indication that SMO was contacted regarding this issue, neither is any documentation of the resolution or indication of how the cooler temperature was derived provided. The TR/COC also did not designate a sample for laboratory QC, but the documentation of the resolution of this issue is provided in the SDG.

When the sample preservation criteria are not met, but the sample analysis and extraction are within the technical holding times then professional judgment is used whether to qualify the data. No action was taken since the preservation exceedence was minimal and the extraction and holding times were well within the established parameters.

The field sampler had used CLP IDs in the incorrect format using the letter 'I' in accordance with the reported previous directions from Region 8, the SMO coordinator assigned new sample IDs to the affected samples and the laboratory was to note this issue in the SDG narrative, which is did. There is no apparent indication that the laboratory had any error involving sample confusion.

No other shipping or receiving problems were noted. Chain-of-custody, summary forms, and raw data were evaluated.

2. INSTRUMENT CALIBRATIONS: INITIAL AND CONTINUING CALIBRATION VERIFICATION (ICV AND CCV)

The initial and continuing calibration verification standards (ICV and CCV, respectively) met SOW requirements.

Yes X No

Comments: None.

The calibration verification results were within 90-110% recovery for metals, 85-115% for cyanide, and 80-120% for mercury.

Yes X No

Comments: None.

The continuing calibration standards were run at 10% frequency or every two hours.

Yes X No _____

Comments: None.

3. BLANKS

The initial and continuing calibration blanks (ICB and CCB, respectively) met SOW requirements.

Yes X No _____

Comments: For the ICP-AES analyses, the ICB was rerun.

The continuing calibration blanks were run at 10% frequency.

Yes X No _____

Comments: Continuing calibration blanks were run every 10 samples.

A laboratory/preparation blank was run at the frequency of one per twenty samples, or per sample delivery group (whichever is more frequent), and for each matrix analyzed.

Yes X No _____

Comments: None.

All analyzed blanks were free of contamination.

Yes _____ No X

Comments: The following table lists the blanks with contamination that resulted in sample qualification, elements present, affected samples, and data qualifiers:

Blank Contaminants

Blank ID	Contam-inant	CRQL	MDL (mg/Kg)	Concentration Found in Blank (mg/Kg)	Associated Samples	Concentration Found in Sample (mg/Kg)	Qualifier/ Adjustment
PB	Antimony	1	0.0097	0.030	MH36L0 MH36L1 MH36L2 MH36L3 MH36L4 MH36L5 MH36L7 MH36L8 MH36L9	0.53 0.45 0.86 0.45 1.7 0.31 0.45 0.19 0.44	1.3 U 1.3 U 1.6 U 1.4 U 2.0 U 3.2 U 1.3 U 1.3 U 5.0 U
PB	Barium	5	0.044	5.0	MH36L9	21.4	24.9 U
PB	Beryllium	0.5	0.0032	0.011	MH36L0 MH36L2 MH36L4 MH36L5 MH36L6 MH36L7 MH36L8 MH36L9	0.38 0.30 0.34 0.79 0.46 0.45 0.53 1.4	0.63 U 0.80 U 1.0 U 1.6 U 0.95 U 0.65 U 0.63 U 2.5 U
PB	Cadmium	0.5	0.0027	0.50	MH36L0 MH36L5 MH36L8 MH36L9	0.73 0.11 0.42 1.2	0.63 U 1.6 U 0.63 U 2.5 U
PB	Calcium	500	1.7	2.587	MH36L2 MH36L4 MH36L5 MH36L9	592 851 1540 2310	804 U 1030 U 1580 U 2490 U
PB	Chromium	1	0.026	1.00	MH36L5 MH36L9	2.6 2.8	3.2 U 5.0 U
PB	Cobalt	1	0.0053	0.024	MH36L5 MH36L9	1.5 1.5	1.6 U 2.5 U
PB	Nickel	0.5	0.013	0.500	MH36L5	1.2	1.6 U
PB	Selenium	2.5	0.036	2.500	MH36L0 MH36L1 MH36L2 MH36L3 MH36L4 MH36L5 MH36L6 MH36L7 MH36L8 MH36L9	0.55 0.32 0.86 0.70 1.2 0.16 1.4 1.2 0.61 12.4	3.1 U 3.3 U 4.0 U 3.5 U 5.1 U 7.9 U 4.8 U 3.3 U 3.1 U 12.4 U
PB	Silver	0.5	0.0023	0.006	MH36L5 MH36L9	0.31 0.71	1.6 U 2.5 U

4. INDUCTIVELY COUPLED PLASMA - INTERFERENCE CHECK SAMPLE (ICP-ICS)

The ICP interference check sample (ICS) was run at the beginning and end of each sample analysis run and every 20 analytical samples, but not prior to the ICV.

Yes X No _____

Comments: None.

Percent recovery of the analytes in the ICS solutions were within the range of 80-120% or the result was within \pm the CRQL.

Yes _____ No X

Comments: For Potassium and Sodium, the ICP-AES Interference Check Sample Results exceeded the True Values by approximately 1.8 to 2.0 times the CRQL, this analysis was repeated with similar results. Results for these analytes that are \geq MDL have been qualified as estimated high (J+).

Sample results for aluminum, calcium, iron, and magnesium were less than the ICSA values or no interference was noted.

Yes X No _____ NA _____

Comments: None.

Sample results contain potential false positives and false negatives.

Yes X No _____

Comments: The following table lists the elements with potential false positives or false negatives that resulted in sample qualification, affected samples, and data qualifiers:

ICP Interferences

Element	Concentration Found in ICSA Sample (ug/L)	Affected Samples	Concentration Found in Sample (mg/Kg)	Qualifier/Adjustment
Beryllium	0.39	MH36L1 MH36L3	>MDL	J+
Potassium	1020	All samples		
Silver	0.027	MH36L0 MH36L1 MH36L2 MH36L3 MH36L4 MH36L6 MH36L7 MH36L8		
Sodium	975	All samples		
Thallium	0.049	All samples		

5. LABORATORY CONTROL SAMPLE

The laboratory control sample (LCS) was prepared and analyzed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No _____

Comments: None.

All results were within control limits OF 70-130%.

Yes X No _____

Comments: None.

6. FORM 6 & 12 - DUPLICATE SAMPLE ANALYSIS

Duplicate sample analysis was performed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No _____ NA _____

Comments: None.

The RPDs were calculated correctly.

Yes X No _____ NA _____

Comments: None.

For sample concentrations greater than five times the CRQL, RPDs were within 20% (limits of 35% apply for soil/sediments/tailings samples).

Yes X No _____ NA _____

Comments: None.

For sample concentrations less than five times the CRQL, duplicate analysis results were within the control window of CRQL (absolute difference < CRQL for soils).

Yes X No _____ NA _____

Comments: None.

7. SPIKE SAMPLE ANALYSIS

A matrix spike sample was analyzed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No _____ NA _____

Comments: None.

The percent recoveries (%Rs) were calculated correctly.

Yes X No _____ NA _____

Comments: None

Spike recoveries were within the range of 75-125% (an exception is granted where the sample concentration is four times the spike concentration).

Yes _____ No X _____

Comments: The following table lists the spike recoveries outside control limits, post digestion spike recoveries, samples affected, and data qualifiers:

Element	Matrix Spike %R	Post-Digestion %R	Samples Affected	Qualifiers
Antimony	20%	85%	All samples	J/UJ
Selenium	55%	67%		J-/UJ
Silver	-11%	86%		J/UJ
Thallium	74%	69%		J-/UJ

A post-digest spike was performed for those elements that did not meet the specified criteria (i.e., Pre-digestion/pre-distillation spike recovery falls outside of control limits and sample result is less than four times the spike amount added, exception: Ag, Hg).

Yes X No _____

Comments: None.

8. ICP SERIAL DILUTION

A serial dilution was performed for ICP analysis with every twenty or fewer samples of a similar matrix, or one per sample delivery group, whichever is more frequent.

Yes X No _____

Comments: None.

The serial dilution was without interference problems as defined by the SOW.

Yes _____ No X

Comments: The following serial dilution %Ds were greater than 10% and the original sample result was at least 50* the MDL:

Element	% Difference	Samples Affected	Qualifiers
Arsenic	18%	All samples	J
Lead	34%		
Potassium	19%		
Sodium	27%		
Zinc	24%		

9. REGIONAL QUALITY ASSURANCE (QA) AND QUALITY CONTROL (QC)

Regional QA/QC was conducted as initiated by the EPA Region 8.

Yes No NA X

Comments: The SDG shows no indication of EPA Region 8 initiating any additional QA / QC.

10. FORM 10 - INTERELEMENT CORRECTION FACTORS FOR ICP

Interelement corrections for ICP were reported.

Yes X No

Comments: None.

11. FORM 12 - PREPARATION LOG

Information on the preparation of samples for analysis was reported on Form 12.

Yes X No

Comments: None.

12. FORM 13 - ANALYSIS RUN LOG

A Form 13 with the required information was filled out for each analysis run in the data package.

Yes X No

Comments: None.

13. Additional Comments or Problems/Resolutions Not Addressed Above

Page 1 of the Evidence Audit Checklist (EAC) indicates three airbills are associated with this SDG, however documentation is only provided for Airbill Number 3430, which documents the shipment of four packages. The laboratory only documented receipt of two coolers, so it is unclear as to what the other two packages were that were included on the airbill.

INORGANIC DATA QUALITY ASSURANCE REVIEW**Region VIII****DATA QUALIFIER DEFINITIONS**

For the purpose of Data Validation, the following code letters and associated definitions are provided for use by the data validator to summarize the data quality. Use of additional qualifiers should be carefully considered. Definitions for all qualifiers used should be provided with each report.

GENERAL QUALIFIERS for use with both INORGANIC and ORGANIC DATA

- R - Reported value is "rejected." The data are unusable. Resampling or reanalysis may be necessary to verify the presence or absence of the compound.
- J - The associated numerical value is an estimated quantity and is the approximate concentration of the analyte in the sample.
- J+ - The associated numerical value is an estimated quantity but the result may be biased high.
- J- - The associated numerical value is an estimated quantity but the result may be biased low.
- U J - The reported quantitation limit is estimated because Quality Control criteria were not met. Element or compound may or may not be present in the sample.
- N J - Estimated value of a tentatively identified compound. (Identified with a CAS number.)
ORGANICS analysis only.
- U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

ACRONYMS

AA	Atomic Absorption
Ag	Silver
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
CRA	CRQL standard required for AA
CRQL	Contract Required Quantitation Limit
CRI	CRQL standard required for ICP
CV	Cold Vapor
EPA	U.S. Environmental Protection Agency
GFAA	Graphite Furnace Atomic Absorption
Hg	Mercury
ICB	Initial Calibration Blank
ICP	Inductively Coupled Plasma
ICS	Interference Check Sample
ICSA	Interference Check Sample (Solution A)
ICSAB	Interference Check Sample (Solution AB)
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LRA	Linear Range Verification Analysis
MDL	Method Detection Limit
PDS	Post Digestion Spike
QC	Quality Control
RPD	Relative Percent Difference
RPM	Regional Project Manager
RSD	Percent Relative Standard Deviation
SA	Spike Added
SAS	Special Analytical Services
SDG	Sample Delivery Group
SOW	Statement of Work
SR	Sample Result
SSR	Spiked Sample Result

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36L0

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH36L0
 Matrix: Soil Lab Sample ID: 1030771001
 % Solids: 79.4 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8100			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1740			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	38100			P
7439-92-1	Lead				
7439-95-4	Magnesium	5830			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	440.	J	E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	30.8	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J+ M
J+ M
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: COARSE

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36LO

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATA C Case No.: 40755

Mod. Ref. No.: SDG No.: MH36L0

Matrix: Soil

Lab Sample ID: 1030771001

% Solids: 79.4

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.53	J	N	MS
7440-38-2	Arsenic	17.7		E	MS
7440-39-3	Barium	121.		*	MS
7440-41-7	Beryllium	0.38	J	E	MS
7440-43-9	Cadmium	0.48	J		MS
7440-70-2	Calcium				
7440-47-3	Chromium	6.9			MS
7440-48-4	Cobalt	13.2		*	MS
7440-50-8	Copper	63.6			MS
7439-89-6	Iron				
7439-92-1	Lead	379.		E	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	1420		D	MS
7439-97-6	Mercury				
7440-02-0	Nickel	6.3			MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.55	J	N	MS
7440-22-4	Silver	1.3		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.30	J	N	MS
7440-62-2	Vanadium	46.3			MS
7440-66-6	Zinc	184.		E	MS
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36L1

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH36L0
 Matrix: Soil Lab Sample ID: 1030771002
 % Solids: 74.7 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13100			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	2020			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	35000			P
7439-92-1	Lead				
7439-95-4	Magnesium	8970			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	501.	J	E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	21.9	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J + H
J + H
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: COARSE

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36L1

Lab Name: ALS Laboratory Group Contract: EPW09036
Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: SDG No.: MH36L0
Matrix: Soil Lab Sample ID: 1030771002
% Solids: 74.7 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.45	J	N	MS
7440-38-2	Arsenic	28.1		E	MS
7440-39-3	Barium	90.8		*	MS
7440-41-7	Beryllium	0.73		E	MS
7440-43-9	Cadmium	2.0			MS
7440-70-2	Calcium				
7440-47-3	Chromium	9.0			MS
7440-48-4	Cobalt	11.2		*	MS
7440-50-8	Copper	193.			MS
7439-89-6	Iron				
7439-92-1	Lead	543.		E	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	3650		D	MS
7439-97-6	Mercury				
7440-02-0	Nickel	5.2			MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.32	J	N	MS
7440-22-4	Silver	1.7		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.40	J	N	MS
7440-62-2	Vanadium	32.2			MS
7440-66-6	Zinc	332.		E	MS
57-12-5	Cyanide				

1.3 UJ ✓
J ✓ KKA 3/10/11
J + ✓

J ✓ KA 3/10/11

J ✓

3.3 UJ ✓
J + ✓
J + ✓
J ✓ 2/18/11

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36L2

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: SDG No.: MH36L0
 Matrix: Soil Lab Sample ID: 1030771003
 % Solids: 62.2 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5960			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	592.	J		P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	116000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	3260			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	842.		E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	65.3	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

804 U H

J + H

J + H
2/18/11

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36L2

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAAC Case No.: 40755

Mod. Ref. No.: SDG No.: MH36L0

Matrix: Soil

Lab Sample ID: 1030771003

% Solids: 62.2

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.86	J	N	MS
7440-38-2	Arsenic	62.5		E	MS
7440-39-3	Barium	121.		*	MS
7440-41-7	Beryllium	0.30	J	E	MS
7440-43-9	Cadmium	1.4			MS
7440-70-2	Calcium				
7440-47-3	Chromium	8.5			MS
7440-48-4	Cobalt	5.4		*	MS
7440-50-8	Copper	177.			MS
7439-89-6	Iron				
7439-92-1	Lead	546.		E	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	1130		D	MS
7439-97-6	Mercury				
7440-02-0	Nickel	4.5			MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.86	J	N	MS
7440-22-4	Silver	5.1		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.30	J	N	MS
7440-62-2	Vanadium	42.6			MS
7440-66-6	Zinc	444.		E	MS
57-12-5	Cyanide				

1.6 UJ ✓
J ✓ KA
J ✓ KA
0.8 U ✓
J ✓ KA
J ✓ KA
J ✓ KA
4.0 UJ ✓
J + ✓
J + ✓
J ✓ ✓
2/18/11

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36L3

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH36L0
 Matrix: Soil Lab Sample ID: 1030771004
 % Solids: 70.9 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12200			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1110			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	31900			P
7439-92-1	Lead				
7439-95-4	Magnesium	5340			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	648.	E		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	29.5	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J+ M
J+ H
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36L3

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH36L0
 Matrix: Soil Lab Sample ID: 1030771004
 % Solids: 70.9 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.45	J	N	MS
7440-38-2	Arsenic	36.8		E	MS
7440-39-3	Barium	147.		*	MS
7440-41-7	Beryllium	1.4		E	MS
7440-43-9	Cadmium	7.4			MS
7440-70-2	Calcium				
7440-47-3	Chromium	9.6			MS
7440-48-4	Cobalt	12.9		*	MS
7440-50-8	Copper	546.			MS
7439-89-6	Iron				
7439-92-1	Lead	779.		DE	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	5130		D	MS
7439-97-6	Mercury				
7440-02-0	Nickel	6.9			MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.70	J	N	MS
7440-22-4	Silver	2.8		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.40	J	N	MS
7440-62-2	Vanadium	33.2			MS
7440-66-6	Zinc	1990		DE	MS
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36L4

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH36L0
 Matrix: Soil Lab Sample ID: 1030771005
 % Solids: 48.8 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8140			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	851.	J		P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	154000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	4670			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1120		E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	98.1	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

1030771005

J+

J+ K
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36L4

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAAC Case No.: 40755

Mod. Ref. No.: _____ SDG No.: MH36L0

Matrix: Soil

Lab Sample ID: 1030771005

% Solids: 48.8

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	1.7	J	N	MS
7440-38-2	Arsenic	86.3		E	MS
7440-39-3	Barium	168.		*	MS
7440-41-7	Beryllium	0.34	J	E	MS
7440-43-9	Cadmium	1.2			MS
7440-70-2	Calcium				
7440-47-3	Chromium	.9.8			MS
7440-48-4	Cobalt	6.1		*	MS
7440-50-8	Copper	251.			MS
7439-89-6	Iron				
7439-92-1	Lead	656.		E	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	1400		D	MS
7439-97-6	Mercury				
7440-02-0	Nickel	4.8			MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.2	J	N	MS
7440-22-4	Silver	7.5		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.31	J	N	MS
7440-62-2	Vanadium	44.3			MS
7440-66-6	Zinc	464.		E	MS
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36L5

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH36L0
 Matrix: Soil Lab Sample ID: 1030771008
 % Solids: 31.6 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5480			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1540			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	359000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	644.	J		P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	146.	J	E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	31.2	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

1580 U M

J+ N

J+ N
2/18/11

Color Before: ORANGE Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36L5

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH36L0
 Matrix: Soil Lab Sample ID: 1030771008
 % Solids: 31.6 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.31	J	N	MS
7440-38-2	Arsenic	19.1		E	MS
7440-39-3	Barium	17.4		*	MS
7440-41-7	Beryllium	0.79	J	E	MS
7440-43-9	Cadmium	0.23	J		MS
7440-70-2	Calcium				
7440-47-3	Chromium	2.6	J		MS
7440-48-4	Cobalt	1.5	J	*	MS
7440-50-8	Copper	20.2			MS
7439-89-6	Iron				
7439-92-1	Lead	115.		E	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	280.			MS
7439-97-6	Mercury				
7440-02-0	Nickel	1.2	J		MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.16	J	N	MS
7440-22-4	Silver	0.31	J	N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	1.6	U	N	MS
7440-62-2	Vanadium	45.9			MS
7440-66-6	Zinc	282.		E	MS
57-12-5	Cyanide				

3.2 U J H
J H K A 3 hole
1.6 U H
1.6 U H
3.2 U H
1.6 U J H
J H
1.6 U H
7.9 U J H
1.6 U J H
J + H
J H
2/18/11

Color Before: ORANGE Clarity Before: _____ Texture: FINE

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36L6

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAc Case No.: 40755

Mod. Ref. No.: _____ SDG No.: MH36L6

Matrix: Soil

Lab Sample ID: 1030771009

% Solids: 52.6

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7030			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1420			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	114000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	3810			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1560		E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	118.	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J+ ^m
J+ ^m
2/18/11

Color Before: ORANGE Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36L6

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH36L0
 Matrix: Soil Lab Sample ID: 1030771009
 % Solids: 52.6 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	2.8		N	MS
7440-38-2	Arsenic	50.2		E	MS
7440-39-3	Barium	146.		*	MS
7440-41-7	Beryllium	0.46	J	E	MS
7440-43-9	Cadmium	2.9			MS
7440-70-2	Calcium				
7440-47-3	Chromium	8.4			MS
7440-48-4	Cobalt	3.9		*	MS
7440-50-8	Copper	279.			MS
7439-89-6	Iron				
7439-92-1	Lead	5720		DE	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	1340		D	MS
7439-97-6	Mercury				
7440-02-0	Nickel	3.8			MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.4	J	N	MS
7440-22-4	Silver	12.1		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.60	J	N	MS
7440-62-2	Vanadium	47.7			MS
7440-66-6	Zinc	815.		E	MS
57-12-5	Cyanide				

Color Before: ORANGE Clarity Before: _____ Texture: FINE

Color After: WHITE Clarity After: CLOUDY Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36L7

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH36L0
 Matrix: Soil Lab Sample ID: 1030771010
 % Solids: 76.8 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9570			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1530			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	57600			P
7439-92-1	Lead				
7439-95-4	Magnesium	6070			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	751.		E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	62.3	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J+ M
J+ P
2/18/11

Color Before: ORANGE Clarity Before: _____ Texture: COARSE

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36L7

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAAC Case No.: 40755

Mod. Ref. No.: SDG No.: MH36L0

Matrix: Soil

Lab Sample ID: 1030771010

% Solids: 76.8

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.45	J	N	MS
7440-38-2	Arsenic	20.3		E	MS
7440-39-3	Barium	97.3		*	MS
7440-41-7	Beryllium	0.45	J	E	MS
7440-43-9	Cadmium	0.90			MS
7440-70-2	Calcium				
7440-47-3	Chromium	7.0			MS
7440-48-4	Cobalt	11.8		*	MS
7440-50-8	Copper	86.5			MS
7439-89-6	Iron				
7439-92-1	Lead	726.		DE	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	1530		D	MS
7439-97-6	Mercury				
7440-02-0	Nickel	4.4			MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.2	J	N	MS
7440-22-4	Silver	1.7		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.39	J	N	MS
7440-62-2	Vanadium	47.3			MS
7440-66-6	Zinc	261.		E	MS
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: CLOUDY Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36L8

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH36L0
 Matrix: Soil Lab Sample ID: 1030771011
 % Solids: 79.5 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10900			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1890			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	37100			P
7439-92-1	Lead				
7439-95-4	Magnesium	5380			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1000		E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	99.3	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J+ H
J+ H
2/18/14

Color Before: ORANGE Clarity Before: _____ Texture: COARSE

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36L8

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: SDG No.: MH36L0
 Matrix: Soil Lab Sample ID: 1030771011
 % Solids: 79.5 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.19	J	N	MS
7440-38-2	Arsenic	17.3		E	MS
7440-39-3	Barium	102.		*	MS
7440-41-7	Beryllium	0.53	J	E	MS
7440-43-9	Cadmium	0.12	J		MS
7440-70-2	Calcium				
7440-47-3	Chromium	8.0			MS
7440-48-4	Cobalt	10.4		*	MS
7440-50-8	Copper	73.1			MS
7439-89-6	Iron				
7439-92-1	Lead	532.		E	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	675.		D	MS
7439-97-6	Mercury				
7440-02-0	Nickel	7.1			MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.61	J	N	MS
7440-22-4	Silver	1.3		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.35	J	N	MS
7440-62-2	Vanadium	49.0			MS
7440-66-6	Zinc	73.8		E	MS
57-12-5	Cyanide				

1.30 J m
 J m K A 3/10/11
 0.630 m
 0.630 m
 J K A 3/10/11
 J m
 3.10 J m
 J + m
 J + m
 J m
 2/18/11

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: GRAY Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36L9

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH36L0
 Matrix: Soil Lab Sample ID: 1030771012
 % Solids: 20.1 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13400			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	2310	J		P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	238000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	913.	J		P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	231.	J	E	P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	44.5	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

2490 U N

J+ N

J+ N

KER
3/10/11

Color Before: ORANGE Clarity Before: _____ Texture: FINE

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH36L9

Lab Name: ALS Laboratory Group Contract: EPW09036
Lab Code: DATAAC Case No.: 40755 Mod. Ref. No.: SDG No.: MH36L0
Matrix: Soil Lab Sample ID: 1030771012
% Solids: 20.1 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.44	J	N	MS
7440-38-2	Arsenic	17.7		E	MS
7440-39-3	Barium	21.4	J	*	MS
7440-41-7	Beryllium	1.4	J	E	MS
7440-43-9	Cadmium	0.35	J		MS
7440-70-2	Calcium				
7440-47-3	Chromium	2.8	J		MS
7440-48-4	Cobalt	1.5	J	*	MS
7440-50-8	Copper	28.1			MS
7439-89-6	Iron				
7439-92-1	Lead	217.		E	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	336.			MS
7439-97-6	Mercury				
7440-02-0	Nickel	1.3	J		MS
7440-09-7	Potassium				
7782-49-2	Selenium	12.4	U	N	MS
7440-22-4	Silver	0.71	J	N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	2.5	U	N	MS
7440-62-2	Vanadium	41.8			MS
7440-66-6	Zinc	269.		E	MS
57-12-5	Cyanide				

5.0 UJ ⁿ
J ⁿ
25.0 U 24.9 UJ ⁿ
2.5 U ⁿ
2.5 U ⁿ
5.0 U ⁿ
2.5 U J ⁿ

J ⁿ

12.4 UJ ⁿ
2.5 UJ ⁿ
UI Kas A 3/10/11
J ³
Kas A
3/10/11

Color Before: ORANGE Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

REGION VIII
DATA VALIDATION REPORT
INORGANIC

Case/TDD No.	Site Name		Operable Unit
40755 / 1008-16	Upper Animas Mining District		
Sabrina Forrest			
Contractor Laboratory	Contract No.	SDG No.	Laboratory DPO/Region
ALS Laboratory Group	EPW05026	MH35H7	

Review Assigned Date: December 15, 2010Data Validator: Fred LuckReview Completion Date: February 18, 2011Report Reviewer: Lesley Boyd

Sample ID	Matrix	Analysis
MH35H7	Sediment	CLP -Metals
MH35J6	Soil - Surface	
MH35J7		
MH35J8		
MH35J9		
MH35K0		
MH35K1		
MH35K2		
MH35K3		
MH35K4		
MH35K5		
MH35K6		
MH35K7		

Sample ID	Matrix	Analysis
MH35K8	Sediment	CLP -Metals
MH35K9		
MH35L0		
MH35L1		
MH35L2		
MH35L3		

DATA QUALITY STATEMENT

- () Data are ACCEPTABLE according to EPA Functional guidelines with no qualifiers (flags) added by the reviewer.
() Data are UNACCEPTABLE according to EPA Functional Guidelines.
(X) Data are acceptable with QUALIFICATIONS noted in review.

Telephone/Communication Logs Enclosed? Yes _____ No X _____

CLP Project Officer Attention Required? Yes _____ No X _____ If yes, list the items that require attention:

INORGANIC DATA VALIDATION REPORT**REVIEW NARRATIVE SUMMARY**

This data package was reviewed according to "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review," January 2010.

Raw data were reviewed for completeness and transcription accuracy onto the summary forms. Approximately 10-15% of the results reported in each of the samples, calibrations, and QC analyses were recalculated and verified. If problems were identified during the recalculation of results, a more thorough calculation check was performed.

The data package, Case No. 40755, SDG No. MH35H7, consisted of nineteen sediment / soil – Surface samples for metals by ICP-AES and ICP-MS (ISM01.2). The following table lists the data qualifiers added to the sample analyses. Please see Data Qualifier Definitions, attached to the end of this report.

Sample ID	Elements	Qualifiers	Reason for Qualification	Review Section
MH35H7, MH35J7, MH35K1, MH35K2, MH35K4, MH35K5, MH35K7, MH35K8, MH35K9, MH35L1, MH35L2	Antimony	U	Blank Contamination	3
MH35H7, MH35J6, MH35J7, MH35J8, MH35J9, MH35K0, MH35K1, MH35K2, MH35K3, MH35K4, MH35K5, MH35K6, MH35K9, MH35L3	Beryllium			
MH35H7, MH35J7, MH35K2, MH35K5, MH35K9, MH35L3	Cadmium			
MH35J7, MH35J8, MH35J9, MH35K0, MH35K3, MH35K5, MH35K6, MH35K9, MH35L0, MH35L3	Calcium			
MH35K0, MH35K3, MH35K5	Chromium			
MH35J8, MH35J9, MH35K0, MH35K3, MH35K5, MH35L3	Cobalt			
MH35J7, MH35J8, MH35J9, MH35K0, MH35K3, MH35K5, MH35K9, MH35L3	Magnesium			
MH35J8, MH35J9, MH35K0, MH35K3, MH35K5, MH35L3	Nickel			
MH35J7, MH35J8, MH35K8, MH35K9, MH35L0, MH35L3	Potassium			
MH35H7, MH35J6, MH35J7, MH35J8, MH35J9, MH35K0, MH35K1, MH35K2, MH35K4, MH35K5, MH35K6, MH35K7, MH35K8, MH35K9, MH35L0, MH35L1, MH35L2, MH35L3	Selenium			
MH35H7	Silver			

Sample ID	Elements	Qualifiers	Reason for Qualification	Review Section
MH35H7, MH35J6, MH35J7, MH35J8, MH35J9, MH35K0, MH35K1, MH35K2, MH35K3, MH35K4, MH35K5, MH35K6, MH35K7, MH35K8, MH35K9, MH35L0, MH35L1, MH35L2, MH35L3	Sodium	U	Blank Contamination	3
MH35K7, MH35K8, MH35L0, MH35L1, MH35L2	Beryllium	J+	Potentially false positive detection in ICS check sample	4
MH35H7, MH35J6, MH35J9, MH35K0, MH35K1, MH35K2, MH35K3, MH35K4, MH35K5, MH35K6, MH35K7, MH35L1, MH35L2	Potassium			
MH35J7, MH35J8, MH35K2, MH35K4, MH35K5, MH35K6, MH35K8, MH35K9, MH35L1, MH35L3	Thallium	J-	Potentially false negative detection in ICS check sample	
All Samples	Copper, Lead	J/UJ	Original & Duplicate both >5x the CRQL and RPD > 20%	6
	Antimony, Silver	J/UJ	MS <30%R, Post Digestion Spike %R ≥ 75%	7
	Barium, Copper	J+	MS >125%R, Post Digestion Spike not performed	
	Arsenic		MS > 125%R, Post Digestion Spike %R > 125%	
	Arsenic, Beryllium, Cadmium, Copper, Nickel, Sodium, Zinc	J/UJ	Serial Dilution %D > 10%	8

1. PRESERVATION AND HOLDING TIMES

All technical holding times and preservation criteria were met.

Yes No X

Comments: The samples were analyzed within 180 days for the ICP metals. According to the Sample Log-In Sheet and case narrative, the two sample coolers were each received at a temperature of 7°C, which is outside the recommended temperature range of $4 \pm 2^\circ\text{C}$. The Sample Log-In Sheet further indicates that neither cooler contained a Cooler Temperature Indicator Bottle, as indicated on the form to be required. There is also no indication that SMO was contacted regarding this issue, neither is any documentation of the resolution or indication of how the cooler temperature was derived provided. The TR/COC also did not designate a sample for laboratory QC, but the documentation of the resolution of this issue is provided in the SDG.

When the sample preservation criteria are not met, but the sample analysis and extraction are within the technical holding times then professional judgment is used whether to qualify the data. No action was taken since the preservation exceedence was minimal and the extraction and holding times were well within the established parameters.

No other shipping or receiving problems were noted. Chain-of-custody, summary forms, and raw data were evaluated.

2. INSTRUMENT CALIBRATIONS: INITIAL AND CONTINUING CALIBRATION VERIFICATION (ICV AND CCV)

The initial and continuing calibration verification standards (ICV and CCV, respectively) met SOW requirements.

Yes X No

Comments: None.

The calibration verification results were within 90-110% recovery for metals, 85-115% for cyanide, and 80-120% for mercury.

Yes X No

Comments: None.

The continuing calibration standards were run at 10% frequency or every two hours.

Yes X No

Comments: None.

3. BLANKS

The initial and continuing calibration blanks (ICB and CCB, respectively) met SOW requirements.

Yes X No _____

Comments: None.

The continuing calibration blanks were run at 10% frequency.

Yes X No _____

Comments: Continuing calibration blanks were run every 10 samples.

A laboratory/preparation blank was run at the frequency of one per twenty samples, or per sample delivery group (whichever is more frequent), and for each matrix analyzed.

Yes X No _____

Comments: None.

All analyzed blanks were free of contamination.

Yes _____ No X

Comments: The following table lists the blanks with contamination that resulted in sample qualification, elements present, affected samples, and data qualifiers:

Blank Contaminants

Blank ID	Contam- inant	CRQL (mg/Kg)	MDL (mg/Kg)	Concentration Found in Blank (mg/Kg)	Associated Samples	Concentration Found in Sample (mg/Kg)	Qualifier/ Adjustment
PB	Antimony	1	0.0097	0.026	MH35H7 MH35J7 MH35K1 MH35K2 MH35K4 MH35K5 MH35K7 MH35K8 MH35K9 MH35L1 MH35L2	0.19 1.2 0.26 0.25 0.54 0.99 0.41 0.59 5.2 0.71 0.34	1.5 U 1.3 U 1.1 U 1.1 U 1.1 U 1.1 U 1.2 U 1.3 U 6.8 U 1.7 U 1.2 U
PB	Beryllium	0.5	0.0032	0.013	MH35H7 MH35J6 MH35J7 MH35J8 MH35J9 MH35K0 MH35K1 MH35K2 MH35K3 MH35K4 MH35K5 MH35K6 MH35K9 MH35L3	0.68 0.19 0.22 0.16 0.21 0.32 0.30 0.20 0.11 0.35 0.13 0.19 0.84 0.11	0.76 U 0.60 U 0.65 U 0.78 U 0.56 U 0.55 U 0.57 U 0.55 U 0.54 U 0.54 U 0.55 U 0.55 U 3.4 U 3.0 U
PB	Cadmium	0.5	0.0027	0.005	MH35H7 MH35J7 MH35K2 MH35K5 MH35K9 MH35L3	0.25 0.58 0.55 0.53 1.7 2.8	0.76 U 0.65 U 0.55 U 0.55 U 3.4 U 3.0 U
PB	Calcium	500	1.7	9.992	MH35J7 MH35J8 MH35J9 MH35K0 MH35K3 MH35K5 MH35K6 MH35K9 MH35L0 MH35L3	369 405 57.7 259 34.8 48.6 246 2040 223 279	648 U 775 U 563 U 551 U 535 U 554 U 547 U 3380 U 718 U 2980 U
PB	Chromium	1	0.026	1.000	MH35K0 MH35K3 MH35K5	0.97 0.86 0.46	1.1 U 1.1 U 1.1 U
PB	Cobalt	1	0.0053	0.006	MH35J8 MH35J9 MH35K0 MH35K3 MH35K5 MH35L3	0.41 0.19 0.23 0.35 0.12 1.4	0.78 U 0.56 U 0.55 U 0.54 U 0.55 U 3.0 U

Blank ID	Contam-inant	CRQL (mg/Kg)	MDL (mg/Kg)	Concentration Found in Blank (mg/Kg)	Associated Samples	Concentration Found in Sample (mg/Kg)	Qualifier/ Adjustment
PB	Magnesium	500	1.2	2.971	MH35J7 MH35J8 MH35J9 MH35K0 MH35K3 MH35K5 MH35K9 MH35L3	477 375 45.9 72.4 38.2 118 2120 486	648 U 775 U 563 U 551 U 535 U 554 U 3380 U 2980 U
PB	Nickel	0.5	0.013	0.500	MH35J8 MH35J9 MH35K0 MH35K3 MH35K5 MH35L3	0.36 0.19 0.17 0.27 0.14 1.6	0.78 U 0.56 U 0.55 U 0.54 U 0.55 U 3.0 U
PB	Potassium	500	5.8	21.198	MH35J7 MH35J8 MH35K8 MH35K9 MH35L0 MH35L3	319 418 645 1130 307 773	648 U 775 U 664 U 3380 U 718 U 2980 U
PB	Selenium	2.5	0.036	2.500	MH35H7 MH35J6 MH35J7 MH35J8 MH35J9 MH35K0 MH35K1 MH35K2 MH35K4 MH35K5 MH35K6 MH35K7 MH35K8 MH35K9 MH35L0 MH35L1 MH35L2 MH35L3	1.1 2.7 1.2 1.4 1.7 1.8 1.3 0.60 0.83 0.90 1.3 0.52 0.35 2.0 0.66 0.59 0.59 4.2	3.8 U 3.0 U 3.2 U 3.9 U 2.8 U 2.8 U 2.8 U 2.8 U 2.7 U 2.7 U 3.0 U 3.3 U 17 U 3.6 U 4.3 U 3.0 U 15 U
PB	Silver	0.5	0.0023	0.004	MH35H7	0.41	0.76 U
PB	Sodium	500	0.73	12.529	MH35H7 MH35J6 MH35J7 MH35J8 MH35J9 MH35K0 MH35K1 MH35K2 MH35K3 MH35K4 MH35K5 MH35K6	80.1 77.4 38.8 43.9 22.3 59.0 37.7 105 53.9 64.3 53.1 70.9	761 U 604 U 648 U 775 U 563 U 551 U 569 U 552 U 535 U 541 U 554 U 547 U

Blank ID	Contaminant	CRQL (mg/Kg)	MDL (mg/Kg)	Concentration Found in Blank (mg/Kg)	Associated Samples	Concentration Found in Sample (mg/Kg)	Qualifier/Adjustment
PB	Sodium	500	0.73	12.529	MH35K7 MH35K8 MH35K9 MH35L0 MH35L1 MH35L2 MH35L3	59.2 22.1 139 23.0 44.3 16.7 48.1	597 U 664 U 3380 U 718 U 855 U 600 U 2980 U

4. INDUCTIVELY COUPLED PLASMA - INTERFERENCE CHECK SAMPLE (ICP-ICS)

The ICP interference check sample (ICS) was run at the beginning and end of each sample analysis run and every 20 analytical samples, but not prior to the ICV.

Yes X No _____

Comments: None.

Percent recovery of the analytes in the ICS solutions were within the range of 80-120% or the result was within ± the CRQL.

Yes X No _____

Comments: None.

Sample results for aluminum, calcium, iron, and magnesium were less than the ICSA values or no interference was noted.

Yes X No _____ NA _____

Comments: None.

Sample results contain potential false positives and false negatives.

Yes X No _____

Comments: The following table lists the elements with potential false positives or false negatives that resulted in sample qualification, affected samples, and data qualifiers:

ICP Interferences

Element	Concentration Found in ICSA Sample (ug/L)	Affected Samples	Concentration Found in Sample (mg/Kg)	Qualifier/Adjustment
Beryllium	0.36	MH35K7 MH35K8 MH35L0 MH35L1 MH35L2	>MDL	J+
Potassium	494	MH35H7 MH35J6 MH35J9 MH35K0 MH35K1 MH35K2 MH35K3 MH35K4 MH35K5 MH35K6 MH35K7 MH35L1 MH35L2		
Thallium	-0.05	MH35J7 MH35J8 MH35K2 MH35K4 MH35K5 MH35K6 MH35K8 MH35K9 MH35L2 MH35L3	0.23 0.10 0.36 0.38 0.43 0.37 0.41 0.31 0.44 0.19	J-

5. LABORATORY CONTROL SAMPLE

The laboratory control sample (LCS) was prepared and analyzed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No _____

Comments: None.

All results were within control limits OF 70-130%.

Yes X No _____

Comments: None.

6. FORM 6 & 12 - DUPLICATE SAMPLE ANALYSIS

Duplicate sample analysis was performed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No NA

Comments: None.

The RPDs were calculated correctly.

Yes X No NA

Comments: None.

For sample concentrations greater than five times the CRQL, RPDs were within $\pm 20\%$ (limits of $\pm 35\%$ apply for soil/sediments/tailings samples).

Yes No X NA

Comments: The following table lists the duplicate results outside control limits, samples affected, and data qualifiers:

Element	RPD	QC Limit	Samples Affected	Qualifiers
Copper	43%	20%	All samples	J / UJ
Lead	71%			

For sample concentrations less than five times the CRQL, duplicate analysis results were within the control window of CRQL (absolute difference < CRQL for soils).

Yes X No NA

Comments: None.

7. SPIKE SAMPLE ANALYSIS

A matrix spike sample was analyzed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No NA

Comments: None.

The percent recoveries (%Rs) were calculated correctly.

Yes X No NA

Comments: None.

Spike recoveries were within the range of 75-125% (an exception is granted where the sample concentration is four times the spike concentration).

Yes X No X

Comments: The following table lists the spike recoveries outside control limits, post digestion spike recoveries, samples affected, and data qualifiers:

Element	Matrix Spike %R	Post-Digestion %R	Samples Affected	Qualifiers
Antimony	17%	85%	All samples	J/UJ
Arsenic	130%	944%		J+
Barium	128%	NA		
Copper	134%	NA		
Silver	11%	88%		J/UJ

NA – No Post digest spike analyzed

A post-digest spike was performed for those elements that did not meet the specified criteria (i.e., Pre-digestion/pre-distillation spike recovery falls outside of control limits and sample result is less than four times the spike amount added, exception: Ag, Hg).

Yes No X NA

Comments: For Arsenic and Copper the spike recoveries were outside of the Control Limits, but no Post-Digest Spike was performed.

8. ICP SERIAL DILUTION

A serial dilution was performed for ICP analysis with every twenty or fewer samples of a similar matrix, or one per sample delivery group, whichever is more frequent.

Yes X No

Comments: None.

The serial dilution was without interference problems as defined by the SOW.

Yes No X

Comments: The following serial dilution %Ds were greater than 10% and the original sample result was at least 50* the MDL:

Element	% Difference	Samples Affected	Qualifiers
Arsenic	21%	All samples	J
Beryllium	19%		
Cadmium	22%		
Copper	14%		
Nickel	15%		
Sodium	53%		
Zinc	29%		

9. REGIONAL QUALITY ASSURANCE (QA) AND QUALITY CONTROL (QC)

Regional QA/QC was conducted as initiated by the EPA Region 8.

Yes No NA X

Comments: The SDG shows no indication of EPA Region 8 initiating any additional QA / QC.

10. FORM 10 - INTERELEMENT CORRECTION FACTORS FOR ICP

Interelement corrections for ICP were reported.

Yes X No

Comments: None.

11. FORM 12 - PREPARATION LOG

Information on the preparation of samples for analysis was reported on Form 12.

Yes X No

Comments: None.

12. FORM 13 - ANALYSIS RUN LOG

A Form 13 with the required information was filled out for each analysis run in the data package.

Yes X No _____

Comments: None.

13. Additional Comments or Problems/Resolutions Not Addressed Above

Page 1 of the Evidence Audit Checklist (EAC) indicates three airbills are associated with this SDG, however documentation is only provided for Airbill Number 3430, which documents the shipment of four packages. The laboratory only documented receipt of two coolers, so it is unclear as to what the other two packages were that were included on the airbill.

INORGANIC DATA QUALITY ASSURANCE REVIEW**Region VIII****DATA QUALIFIER DEFINITIONS**

For the purpose of Data Validation, the following code letters and associated definitions are provided for use by the data validator to summarize the data quality. Use of additional qualifiers should be carefully considered. Definitions for all qualifiers used should be provided with each report.

GENERAL QUALIFIERS for use with both INORGANIC and ORGANIC DATA

- R - Reported value is "rejected." The data are unusable. Resampling or reanalysis may be necessary to verify the presence or absence of the compound.
- J - The associated numerical value is an estimated quantity and is the approximate concentration of the analyte in the sample.
- J+ - The associated numerical value is an estimated quantity but the result may be biased high.
- J- - The associated numerical value is an estimated quantity but the result may be biased low.
- U J - The reported quantitation limit is estimated because Quality Control criteria were not met. Element or compound may or may not be present in the sample.
- N J - Estimated value of a tentatively identified compound. (Identified with a CAS number.)
ORGANICS analysis only.
- U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

ACRONYMS

AA	Atomic Absorption
Ag	Silver
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
CRA	CRQL standard required for AA
CRQL	Contract Required Quantitation Limit
CRI	CRQL standard required for ICP
CV	Cold Vapor
EPA	U.S. Environmental Protection Agency
GFAA	Graphite Furnace Atomic Absorption
Hg	Mercury
ICB	Initial Calibration Blank
ICP	Inductively Coupled Plasma

ICS	Interference Check Sample
ICSA	Interference Check Sample (Solution A)
ICSAB	Interference Check Sample (Solution AB)
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
LRA	Linear Range Verification Analysis
MDL	Method Detection Limit
PDS	Post Digestion Spike
QC	Quality Control
RPD	Relative Percent Difference
RPM	Regional Project Manager
RSD	Percent Relative Standard Deviation
SA	Spike Added
SAS	Special Analytical Services
SDG	Sample Delivery Group
SOW	Statement of Work
SR	Sample Result
SSR	Spiked Sample Result

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35H7

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770001
 % Solids: 65.7 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5550			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1500			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	30000			P
7439-92-1	Lead				
7439-95-4	Magnesium	2560			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	934.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	80.1	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J + K
761 UJ 71
2/18/11

Color Before: ORANGE Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35H7

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATA C Case No.: 40755

Mod. Ref. No.: SDG No.: MH35H7

Matrix: Soil

Lab Sample ID: 1030770001

% Solids: 65.7

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.19	J	N	MS
7440-38-2	Arsenic	11.7		NE	MS
7440-39-3	Barium	190.		N	MS
7440-41-7	Beryllium	0.68	J	E	MS
7440-43-9	Cadmium	0.25	J	E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	4.8			MS
7440-48-4	Cobalt	4.3		*	MS
7440-50-8	Copper	34.5		*NE	MS
7439-89-6	Iron				
7439-92-1	Lead	72.5		*	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	568.			MS
7439-97-6	Mercury				
7440-02-0	Nickel	3.9		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.1	J		MS
7440-22-4	Silver	0.41	J	N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.52	J		MS
7440-62-2	Vanadium	45.2			MS
7440-66-6	Zinc	99.0		*E	MS
57-12-5	Cyanide				

Color Before: ORANGE Clarity Before: Texture: MEDIUM

Clarity Before: **Texture: MEDIUM**

Texture: MEDIUM

Color After: GRAY Clarity After: CLOUDY Artifacts:

Clarity After: CLOUDY Artifacts:

Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35J6

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770004
 % Solids: 82.8 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8780			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1780			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	102000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	5600			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	790.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	77.4	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J + JK
604 UJ JK
2/18/11

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35J6

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770004
 % Solids: 82.8 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	1.8		N	MS
7440-38-2	Arsenic	9.1		NE	MS
7440-39-3	Barium	105.		N	MS
7440-41-7	Beryllium	0.19	J	E	MS
7440-43-9	Cadmium	0.63		E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	4.9			MS
7440-48-4	Cobalt	1.3		*	MS
7440-50-8	Copper	195.		*NE	MS
7439-89-6	Iron				
7439-92-1	Lead	6440		D*	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	452.			MS
7439-97-6	Mercury				
7440-02-0	Nickel	2.3		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	2.7	J		MS
7440-22-4	Silver	103.		DN	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.50	J		MS
7440-62-2	Vanadium	26.0			MS
7440-66-6	Zinc	167.		*E	MS
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: BROWN Clarity After: CLOUDY Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35J7

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATA C Case No.: 40755

Mod. Ref. No.: SDG No.: MH35H7

Matrix: Soil

Lab Sample ID: 1030770005

% Solids: 77.2

Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1470			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	369.	J		P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	150000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	477.	J		P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	319.	J		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	38.8	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

648 U KBT
310111

6480 π

6480 ^m

648 UJ ^a
2/18/11

Color Before: ORANGE Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35J7

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770005
 % Solids: 77.2 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	1.2	J	N	MS
7440-38-2	Arsenic	15.7		NE	MS
7440-39-3	Barium	18.7		N	MS
7440-41-7	Beryllium	0.22	J	E	MS
7440-43-9	Cadmium	0.58	J	E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	1.8			MS
7440-48-4	Cobalt	1.0		*	MS
7440-50-8	Copper	104.		*NE	MS
7439-89-6	Iron				
7439-92-1	Lead	1850		D*	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	630.			MS
7439-97-6	Mercury				
7440-02-0	Nickel	1.3		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.2	J		MS
7440-22-4	Silver	10.4		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.23	J		MS
7440-62-2	Vanadium	23.7			MS
7440-66-6	Zinc	265.		*E	MS
57-12-5	Cyanide				

1.3 U ^z
 J+ ^z
 J+ ^z
 0.65 U J ^z
 0.65 U J ^z
~~J~~ ^{KAA}
 3/10/11
 J+ ^z
 J ^z
 J ^z
 J ^z
 3.2 U ^z
 J ^z
 0.5 J ^z
~~J~~ ^{KAA}
 3/10/11
 2/18/11

Color Before: BROWN Clarity Before: _____ Texture: COARSE

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35J8

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770006
 % Solids: 64.5 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2260			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	405.	J		P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	308000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	375.	J		P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	418.	J		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	43.9	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

7750^m

7750^m

7750^m

7750^m
8/18/11

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35J8

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770006
 % Solids: 64.5 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	12.0		N	MS
7440-38-2	Arsenic	29.3		NE	MS
7440-39-3	Barium	68.3		N	MS
7440-41-7	Beryllium	0.16	J	E	MS
7440-43-9	Cadmium	35.4		E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	2.2			MS
7440-48-4	Cobalt	0.41	J	*	MS
7440-50-8	Copper	286.		*NE	MS
7439-89-6	Iron				
7439-92-1	Lead	5080		D*	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	136.			MS
7439-97-6	Mercury				
7440-02-0	Nickel	0.36	J	E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.4	J		MS
7440-22-4	Silver	27.5		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.10	J		MS
7440-62-2	Vanadium	49.7			MS
7440-66-6	Zinc	11300		D*E	MS
57-12-5	Cyanide				

J + " " " " 0.780 J " 0.780 J " J " 3.90 J " J " J- " 2/18/11
 3.90 J " 2/18/11

Color Before: BROWN Clarity Before: _____ Texture: COARSE

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN

EPA SAMPLE NO.

MH35J9

Lab Name: ALS Laboratory Group Contract: EPW09036
Lab Code: DATA Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
Matrix: Soil Lab Sample ID: 1030770007
% Solids: 88.8 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1130			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	57.7	J		P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	8170			P
7439-92-1	Lead				
7439-95-4	Magnesium	45.9	J		P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	714.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	22.3	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

5630^m

5630^m

J+ χ

563 UJ^m
2/18/11

Color Before: YELLOW Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35J9

Lab Name: ALS Laboratory Group Contract: EPW09036
Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
Matrix: Soil Lab Sample ID: 1030770007
% Solids: 88.8 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	13.5		N	MS
7440-38-2	Arsenic	34.9		NE	MS
7440-39-3	Barium	83.8		N	MS
7440-41-7	Beryllium	0.21	J	E	MS
7440-43-9	Cadmium	5.0		E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	1.3			MS
7440-48-4	Cobalt	0.19	J	*	MS
7440-50-8	Copper	211.		*NE	MS
7439-89-6	Iron				
7439-92-1	Lead	3880		D*	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	423.			MS
7439-97-6	Mercury				
7440-02-0	Nickel	0.19	J	E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.7	J		MS
7440-22-4	Silver	34.6		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.61			MS
7440-62-2	Vanadium	7.8			MS
7440-66-6	Zinc	1400		D*E	MS
57-12-5	Cyanide				

Color Before: YELLOW Clarity Before: Texture: MEDIUM

Clarity Before: **Texture: MEDIUM**

Texture: MEDIUM

Color After: WHITE Clarity After: CLOUDY Artifacts:

Clarity After: CLOUDY

Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K0

Lab Name: ALS Laboratory Group Contract: EPW09036
Lab Code: DATA_C Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
Matrix: Soil Lab Sample ID: 1030770008
% Solids: 90.7 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

5510 71

551 U M

J + H

551 UJZ
2/18/11

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K0

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770008
 % Solids: 90.7 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	11.7		N	MS
7440-38-2	Arsenic	38.6		NE	MS
7440-39-3	Barium	97.2		N	MS
7440-41-7	Beryllium	0.32	J	E	MS
7440-43-9	Cadmium	7.6		E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	0.97	J		MS
7440-48-4	Cobalt	0.23	J	*	MS
7440-50-8	Copper	471.		*NE	MS
7439-89-6	Iron				
7439-92-1	Lead	4920		D*	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	122.			MS
7439-97-6	Mercury				
7440-02-0	Nickel	0.17	J	E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.8	J		MS
7440-22-4	Silver	54.0		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.85			MS
7440-62-2	Vanadium	12.0			MS
7440-66-6	Zinc	2100		D*E	MS
57-12-5	Cyanide				

J ^m
 J+ ^m
 J+ ^m
 0.55 U J ^m
 J ^m
 1.1 U ^m
 0.55 U ^m
 J+ ^m
 J ^m
 0.55 U J ^m
 2.8 U ^m
 J ^m
 1/10/11
 2/18/11

Color Before: YELLOW Clarity Before: _____ Texture: MEDIUM

Color After: BROWN Clarity After: CLOUDY Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K1

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770009
 % Solids: 87.8 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2020			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	807.			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	21500			P
7439-92-1	Lead				
7439-95-4	Magnesium	950.			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1460			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	37.7	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J + M

569 UJ H
2/18/11

Color Before: ORANGE Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K1

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770009
 % Solids: 87.8 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.26	J	N	MS
7440-38-2	Arsenic	90.2		NE	MS
7440-39-3	Barium	72.1		N	MS
7440-41-7	Beryllium	0.30	J	E	MS
7440-43-9	Cadmium	1.1		E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	2.3			MS
7440-48-4	Cobalt	0.88		*	MS
7440-50-8	Copper	111.		*NE	MS
7439-89-6	Iron				
7439-92-1	Lead	4510		D*	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	843.		D	MS
7439-97-6	Mercury				
7440-02-0	Nickel	0.74		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.3	J		MS
7440-22-4	Silver	8.4		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	1.2		D	MS
7440-62-2	Vanadium	17.5			MS
7440-66-6	Zinc	319.		*E	MS
57-12-5	Cyanide				

1.1 U ~~J~~
 J + ~~N~~
 J + ~~M~~
 0.57 U J ~~M~~
 J ~~M~~
~~K A~~ ~~310/11~~
 J + ~~N~~
 J ~~M~~
 J ~~M~~
 2.8 U ~~J~~
 J ~~M~~
~~K A~~ ~~310/11~~
 J ~~M~~
 2/18/11

Color Before: ORANGE Clarity Before: _____ Texture: MEDIUM

Color After: GREEN Clarity After: CLOUDY Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K2

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770010
 % Solids: 90.5 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11200			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1360			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	36000			P
7439-92-1	Lead				
7439-95-4	Magnesium	11100			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	872.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	105.	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J + M
552 UJ M
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K2

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770010
 % Solids: 90.5 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.25	J	N	MS
7440-38-2	Arsenic	96.8		NE	MS
7440-39-3	Barium	34.9		N	MS
7440-41-7	Beryllium	0.20	J	E	MS
7440-43-9	Cadmium	0.55		E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	11.9			MS
7440-48-4	Cobalt	5.5		*	MS
7440-50-8	Copper	47.1		*NE	MS
7439-89-6	Iron				
7439-92-1	Lead	1030		D*	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	1620		D	MS
7439-97-6	Mercury				
7440-02-0	Nickel	5.3		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.60	J		MS
7440-22-4	Silver	5.7		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.36	J	D	MS
7440-62-2	Vanadium	62.1			MS
7440-66-6	Zinc	187.		*E	MS
57-12-5	Cyanide				

1.1 U *✓*
 J+ *✓*
 J+ *✓*
 0.55 U J *✓*
 0.55 U J *✓*

~~J~~ *✓*
 J+ *✓*
 J *✓*

J *✓*
 2.8 U *✓*
 J *✓*
 J - *✓*
 J *✓*

2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: WHITE Clarity After: CLOUDY Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K3

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770011
 % Solids: 93.4 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	665.			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	34.8	J		P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	22200			P
7439-92-1	Lead				
7439-95-4	Magnesium	38.2	J		P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1200			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	53.9	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

535 U^X

535 U^X

J + P^X

535 U J^X
2/18/11

Color Before: YELLOW Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K3

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770011
 % Solids: 93.4 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	12.2		N	MS
7440-38-2	Arsenic	55.2		NE	MS
7440-39-3	Barium	81.3		N	MS
7440-41-7	Beryllium	0.11	J	E	MS
7440-43-9	Cadmium	40.0		E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	0.86	J		MS
7440-48-4	Cobalt	0.35	J	*	MS
7440-50-8	Copper	4600		D*NE	MS
7439-89-6	Iron				
7439-92-1	Lead	15500		D*	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	177.			MS
7439-97-6	Mercury				
7440-02-0	Nickel	0.27	J	E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	3.4			MS
7440-22-4	Silver	113.		DN	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.73			MS
7440-62-2	Vanadium	7.1			MS
7440-66-6	Zinc	10400		D*E	MS
57-12-5	Cyanide				

Color Before: GREEN Clarity Before: _____ Texture: MEDIUM

Color After: GRAY Clarity After: CLOUDY Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K4

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770012
 % Solids: 92.5 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13000			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	2030			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	25200			P
7439-92-1	Lead				
7439-95-4	Magnesium	12700			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	671.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	64.3	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J +
 541 UJ
 2/18/14

Color Before: YELLOW Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K4

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770012
 % Solids: 92.5 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.54	J	N	MS
7440-38-2	Arsenic	32.8		NE	MS
7440-39-3	Barium	46.1		N	MS
7440-41-7	Beryllium	0.35	J	E	MS
7440-43-9	Cadmium	0.70		E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	10.0			MS
7440-48-4	Cobalt	4.6		*	MS
7440-50-8	Copper	33.1		*NE	MS
7439-89-6	Iron				
7439-92-1	Lead	2260		D*	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	3280		D	MS
7439-97-6	Mercury				
7440-02-0	Nickel	5.3		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.83	J		MS
7440-22-4	Silver	4.6		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.38	J		MS
7440-62-2	Vanadium	60.8			MS
7440-66-6	Zinc	210.		*E	MS
57-12-5	Cyanide				

1.1 U M
J+ M
J+ N
0.54 U J M
J M
~~J M~~ 3/10/11
J+ N
J N
J N
2.7 U M
J N
J- N
~~J N~~ 3/10/11
J N
2/18/M

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: BROWN Clarity After: CLOUDY Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K5

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770013
 % Solids: 90.3 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	906.			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	48.6	J		P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	7700			P
7439-92-1	Lead				
7439-95-4	Magnesium	118.	J		P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	961.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	53.1	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

554 U ^H

554 U ^K

J + ^H

554 U ^J
^{2/18/11}

Color Before: GRAY Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K5

Lab Name: ALS Laboratory Group

Contract: EPW09036

Lab Code: DATAAC Case No.: 40755

Mod. Ref. No.: SDG No.: MH35H7

Matrix: Soil

Lab Sample ID: 1030770013

% Solids: 90.3

Date Received: 11/03/2010

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.99	J	N	MS
7440-38-2	Arsenic	13.6		NE	MS
7440-39-3	Barium	37.1		N	MS
7440-41-7	Beryllium	0.13	J	E	MS
7440-43-9	Cadmium	0.53		E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	0.46	J		MS
7440-48-4	Cobalt	0.12	J	*	MS
7440-50-8	Copper	63.1		*NE	MS
7439-89-6	Iron				
7439-92-1	Lead	1050		D*	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	135.			MS
7439-97-6	Mercury				
7440-02-0	Nickel	0.14	J	E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.90	J		MS
7440-22-4	Silver	6.9		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.43	J		MS
7440-62-2	Vanadium	4.9			MS
7440-66-6	Zinc	140.		*E	MS
57-12-5	Cyanide				

Color Before: GREEN Clarity Before: Texture: MEDIUM

Clarity Before: **Texture: MEDIUM**

Texture: MEDIUM

Color After: GREEN Clarity After: CLOUDY Artifacts:

Clarity After: CLOUDY Artifacts:

Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K6

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770014
 % Solids: 91.4 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3270			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	246.	J		P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	46300		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	1920			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	769.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	70.9	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

547 U^n

J + ^

547 UJ^n
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K6

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770014
 % Solids: 91.4 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	3.6		N	MS
7440-38-2	Arsenic	37.7		NE	MS
7440-39-3	Barium	68.4		N	MS
7440-41-7	Beryllium	0.19	J	E	MS
7440-43-9	Cadmium	9.0		E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	2.7			MS
7440-48-4	Cobalt	1.5		*	MS
7440-50-8	Copper	285.		*NE	MS
7439-89-6	Iron				
7439-92-1	Lead	3170		D*	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	433.			MS
7439-97-6	Mercury				
7440-02-0	Nickel	1.4		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	1.3	J		MS
7440-22-4	Silver	22.9		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.37	J		MS
7440-62-2	Vanadium	15.4			MS
7440-66-6	Zinc	2580		D*E	MS
57-12-5	Cyanide				

m
 J
 J+
 J+
 0.55 UJ
 J
 HA
 J+
 J
 J
 2.70
 J
 J-
 J
 2/8/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: BROWN Clarity After: CLOUDY Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K7

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770015
 % Solids: 83.7 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	19500			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1540			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	55900		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	9940			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1090			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	59.2	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J+ N
597 UJ 11
2/18/11

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K7

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770015
 % Solids: 83.7 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.41	J	N	MS
7440-38-2	Arsenic	31.9		NE	MS
7440-39-3	Barium	154.		N	MS
7440-41-7	Beryllium	0.79		E	MS
7440-43-9	Cadmium	3.7		E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	9.9			MS
7440-48-4	Cobalt	21.4		*	MS
7440-50-8	Copper	162.		*NE	MS
7439-89-6	Iron				
7439-92-1	Lead	1070		D*	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	5570		D	MS
7439-97-6	Mercury				
7440-02-0	Nickel	9.5		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.52	J		MS
7440-22-4	Silver	2.7		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.56	J		MS
7440-62-2	Vanadium	47.5			MS
7440-66-6	Zinc	498.		*E	MS
57-12-5	Cyanide				

1.2 U ^H
 J+ ^H
 J+ ^H
 J+ ^H
 J ^H
~~J~~ ^{K-A}
 J+ ^H
 J ^H
 J ^H
 J ^H
 3.0 U ^H
 J ^H
~~J~~ ^{K-A}
 J ^H
 2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: BROWN Clarity After: CLOUDY Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K8

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770016
 % Solids: 75.3 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13600			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1310			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	37200			P
7439-92-1	Lead				
7439-95-4	Magnesium	7200			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	645.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	22.1	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

664 U [✓]

664 UJ [✓]
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K8

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770016
 % Solids: 75.3 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.59	J	N	MS
7440-38-2	Arsenic	25.8		NE	MS
7440-39-3	Barium	74.3		N	MS
7440-41-7	Beryllium	1.3		E	MS
7440-43-9	Cadmium	6.0		E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	7.1			MS
7440-48-4	Cobalt	12.3		*	MS
7440-50-8	Copper	516.		*NE	MS
7439-89-6	Iron				
7439-92-1	Lead	481.		*	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	4710		D	MS
7439-97-6	Mercury				
7440-02-0	Nickel	10.3		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.35	J		MS
7440-22-4	Silver	2.0		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.41	J		MS
7440-62-2	Vanadium	32.5			MS
7440-66-6	Zinc	651.		D*E	MS
57-12-5	Cyanide				

1,3 U *KA 3/10/11*
 J+ *n*
 J+ *n*
 J+ *n*
 J+ *n*
 J *n*
 3,3 U *KA 3/10/11*
 J *n*
 J *n*
 J- *n*
 J *n*
 J *n*
2/18/10

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: TAN Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K9

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770017
 % Solids: 14.8 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6720			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	2040	J		P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	141000			P
7439-92-1	Lead				
7439-95-4	Magnesium	2120	J		P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1130	J		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	139.	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

3380 U²⁴

3380 U²⁴

3380 U²⁴

3380 UJ²⁴
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35K9

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770017
 % Solids: 14.8 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	5.2	J	N	MS
7440-38-2	Arsenic	42.6		NE	MS
7440-39-3	Barium	119.		N	MS
7440-41-7	Beryllium	0.84	J	E	MS
7440-43-9	Cadmium	1.7	J	E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	19.7			MS
7440-48-4	Cobalt	4.8		*	MS
7440-50-8	Copper	303.		*NE	MS
7439-89-6	Iron				
7439-92-1	Lead	668.		*	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	1180			MS
7439-97-6	Mercury				
7440-02-0	Nickel	5.9		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	2.0	J		MS
7440-22-4	Silver	27.1		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.31	J		MS
7440-62-2	Vanadium	20.8			MS
7440-66-6	Zinc	350.		*E	MS
57-12-5	Cyanide				

6.8 U [✓]
 J+ [✓]
 J+ [✓]
 3.4 UJ [✓]
 3.4 UJ [✓]
~~J~~ ~~KA~~
 J+ [✓]
 J [✓]
 J [✓]
 17 U [✓]
 J [✓]
 J- [✓]
~~J~~ ~~KA~~
 J [✓]
 J [✓]
 9/18/11

Color Before: BROWN Clarity Before: _____ Texture: FINE

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35L0

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770018
 % Solids: 69.6 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3020			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	223.	J		P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	5150			P
7439-92-1	Lead				
7439-95-4	Magnesium	1090			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	307.	J		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	23.0	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

718 U *7*

718 U *7*

718 U J *7*
2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35L0

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770018
 % Solids: 69.6 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	1.7		N	MS
7440-38-2	Arsenic	45.6		NE	MS
7440-39-3	Barium	264.		N	MS
7440-41-7	Beryllium	1.3		E	MS
7440-43-9	Cadmium	6.0		E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	6.2			MS
7440-48-4	Cobalt	15.3		*	MS
7440-50-8	Copper	424.		*NE	MS
7439-89-6	Iron				
7439-92-1	Lead	2030		D*	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	7960		D	MS
7439-97-6	Mercury				
7440-02-0	Nickel	7.7		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.66	J		MS
7440-22-4	Silver	11.8		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.77			MS
7440-62-2	Vanadium	27.8			MS
7440-66-6	Zinc	614.		*E	MS
57-12-5	Cyanide				

✓ ✓
 ✓ + ✓
 ✓ + ✓
 ✓ + ✓
 ✓ + ✓
 ✓ ✓
 J → LA
 J + ✓
 J
 J
 J
 J
 J
 J
 3.6 U
 J
 J
 J → LA
 J
 2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: TAN Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35L1

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770019
 % Solids: 58.5 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11500			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1280			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	27100			P
7439-92-1	Lead				
7439-95-4	Magnesium	5670			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	1210			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	44.3	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J+ m
88 855 UJ
4/18/u

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM.

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35L1

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770019
 % Solids: 58.5 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.71	J	N	MS
7440-38-2	Arsenic	49.4		NE	MS
7440-39-3	Barium	205.		N	MS
7440-41-7	Beryllium	1.3		E	MS
7440-43-9	Cadmium	7.0		E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	8.2			MS
7440-48-4	Cobalt	15.8		*	MS
7440-50-8	Copper	294.		*NE	MS
7439-89-6	Iron				
7439-92-1	Lead	754.		*	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	11500		D	MS
7439-97-6	Mercury				
7440-02-0	Nickel	7.8		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.59	J		MS
7440-22-4	Silver	4.0		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.88			MS
7440-62-2	Vanadium	38.0			MS
7440-66-6	Zinc	899.		D*E	MS
57-12-5	Cyanide				

1.7U ✓
 J+ ✓
 J+ ✓
 J+ ✓
 J ✓
 I ✓
 J+ ✓
 J ✓
 J ✓
 J ✓
 4.3U ✓
 J ✓
 J ✓
 J ✓
 2/18/14

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: TAN Clarity After: CLOUDY Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35L2

Lab Name: ALS Laboratory Group Contract: EPW09036

Lab Code: DATAc Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7

Matrix: Soil Lab Sample ID: 1030770020

% Solids: 83.4 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15700			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	1990			P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	71200		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	11500			P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	642.			P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	16.7	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

J +
 600 UJ ^m
 2/18/11

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35L2

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770020
 % Solids: 83.4 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	0.34	J	N	MS
7440-38-2	Arsenic	31.5		NE	MS
7440-39-3	Barium	94.2		N	MS
7440-41-7	Beryllium	1.4		E	MS
7440-43-9	Cadmium	10.4		E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	8.0			MS
7440-48-4	Cobalt	20.5		*	MS
7440-50-8	Copper	1240		D*NE	MS
7439-89-6	Iron				
7439-92-1	Lead	1480		D*	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	6600		D	MS
7439-97-6	Mercury				
7440-02-0	Nickel	11.7		E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	0.59	J		MS
7440-22-4	Silver	1.2		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.44	J		MS
7440-62-2	Vanadium	40.9			MS
7440-66-6	Zinc	1500		D*E	MS
57-12-5	Cyanide				

1.2 U ✓
 J+ ✓
 J+ ✓
 J+ ✓
 J+ ✓
 J ✓
~~J~~ ✓
 J+ ✓
 J ✓
 J ✓
 J ✓
 J ✓
 J ✓
 J ✓
 J ✓
 J ✓
 J ✓
 J ✓
 J ✓
 J ✓
 J ✓
 J ✓
 J ✓
 2/18/11

Color Before: BROWN Clarity Before: _____ Texture: COARSE

Color After: BROWN Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35L3

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770021
 % Solids: 16.8 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	986.			P
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium	279.	J		P
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron	273000		D	P
7439-92-1	Lead				
7439-95-4	Magnesium	486.	J		P
7439-96-5	Manganese				
7439-97-6	Mercury				
7440-02-0	Nickel				
7440-09-7	Potassium	773.	J		P
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium	48.1	J	E	P
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc				
57-12-5	Cyanide				

2980 U ^m

2980 U ^K

2980 U ^M

2980 U ^J

2/18/11

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E: The reported value is estimated due to the presence of interference.

USEPA - CLP
1B-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MH35L3

Lab Name: ALS Laboratory Group Contract: EPW09036
 Lab Code: DATAC Case No.: 40755 Mod. Ref. No.: _____ SDG No.: MH35H7
 Matrix: Soil Lab Sample ID: 1030770021
 % Solids: 16.8 Date Received: 11/03/2010

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony	23.3		N	MS
7440-38-2	Arsenic	969.		NE	MS
7440-39-3	Barium	37.1		N	MS
7440-41-7	Beryllium	0.11	J	E	MS
7440-43-9	Cadmium	2.8	J	E	MS
7440-70-2	Calcium				
7440-47-3	Chromium	11.3			MS
7440-48-4	Cobalt	1.4	J	*	MS
7440-50-8	Copper	235.		*NE	MS
7439-89-6	Iron				
7439-92-1	Lead	1100		*	MS
7439-95-4	Magnesium				
7439-96-5	Manganese	304.			MS
7439-97-6	Mercury				
7440-02-0	Nickel	1.6	J	E	MS
7440-09-7	Potassium				
7782-49-2	Selenium	4.2	J		MS
7440-22-4	Silver	13.2		N	MS
7440-23-5	Sodium				
7440-28-0	Thallium	0.19	J		MS
7440-62-2	Vanadium	57.1			MS
7440-66-6	Zinc	524.		*E	MS
57-12-5	Cyanide				

J "
 JT "
 JT "
 3.0 UJ "
 3.0 UJ "
 3.0 U "
 JT "
 J "
 3.0 UJ "
 15 U "
 JT "
 JT "
 JT "
 JT "
 KA
 3 holes
 2/18/11

Color Before: RED Clarity Before: _____ Texture: MEDIUM

Color After: BROWN Clarity After: CLEAR Artifacts: _____

Comments:

E: The reported value is estimated due to the presence of interference.

REGION VIII
DATA VALIDATION REPORT
INORGANIC

Case No. / TDD No.	Site Name	Operable Unit	
C101003, C101004 / 1008-13	Upper Animas Mining District		
RPM/OSC Name			
Sabrina Forrest			
Contractor Laboratory	Contract No.	TDF No.	Laboratory DPO/Region
ESAT – TechLaw, Inc.		DG-214 water and soil	

Review Assigned Date March 28, 2011
 Review Completion Date March 30, 2011

Data Validator Diane Short & Assoc. Review
 Report Reviewer Kent Alexander

Sample ID	Matrix	Analysis
UASE001D	Sediment	Dissolved (water) and Total Recoverable (soil) Metals by EPA Methods 200.7 and 200.8
UASE002		
UASE003		
UASE001		
UASW001	Water	
UASW001 (should be 001D)		
UAWS002		
UASW003		

DATA QUALITY STATEMENT

- () Data are ACCEPTABLE according to EPA Functional guidelines with no qualifiers (flags) added by the reviewer.
() Data are UNACCEPTABLE according to EPA Functional Guidelines.
(X) Data are acceptable with QUALIFICATIONS noted in review.

Telephone/Communication Logs Enclosed? Yes _____ No X _____

CLP Project Officer Attention Required? Yes _____ No X _____ If yes, list the items that require attention:

INORGANIC DATA VALIDATION REPORT**REVIEW NARRATIVE SUMMARY**

This data package was reviewed according to "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," (NFG) January 2010.

Raw data were reviewed for completeness and transcription accuracy onto the summary forms. Approximately 10-20% of the results reported in each of the samples, calibrations, and QC analyses were recalculated and verified. If problems were identified during the recalculation of results, a more thorough calculation check was performed.

The data package, TDF No. DG-214, consisted of 4 sediment samples for Total Recoverable Metals and 4 water samples for Dissolved Metals by Methods 200.7 and 200.8 by ICP. The following table lists the data qualifiers added to the sample analyses. Please see Data Qualifier Definitions, attached to the end of this report.

Deliverables:

Note that the laboratory forms do not contain times of analysis on the result forms nor on the QC and Calibration Forms. This is not uncommon for CLP-type forms, but it means that the raw data must be spot checked to verify the calibration associations. As there were no outliers, no further action is taken.

Sample Tracking:

There are Deliverable Submission Forms, but no actual laboratory log-in forms. The integrity of the samples cannot be verified. There are no courier forms or tracking identifications. Sample authentication cannot be verified. Samples were collected on 10/8/2010 and relinquished on 10/11/2010. There is no record of custody for that time period.

For the waters samples, the location ID was logged for the sample ID so the UASW001 and UASW001D distinction was not carried over into the laboratory result forms. Laboratory sample C1010004-2 should be client ID UASW001D.

No shipping or receiving problems were noted in the narrative. As the client was not notified of custody or integrity issues, no further action is taken.

Blanks:

There are results reported for many of the ICB and CCBs, but none are above the MDLs recorded on the result forms (the ICB/CCB forms only note the PQLs) with the exception of iron reported at 28.9 mg/kg for QC set 1010049 for ICP soils. All data are > 5 x Blank and no qualification is required.

The laboratory notes that cadmium was detected in the prep blank at < 2 x PQL. The result for cadmium is reported at 103 ug/kg. The RL for cadmium was raised from 20 ug/kg to 30 ug/kg. The client will need to determine if the elevated limits meet project criteria. All client data were > 5 x blank and no qualification is required.

There are no rinse blanks, which would be appropriate if dedicated equipment was used.

Interference Check:

The ICSA value for iron is 250,000 ug/l for water or 25,000 mg/kg for soil . Iron values for the sediments were greater than the ICSA, but the QC check was well within limits and no qualifications were required.

Laboratory Control Sample:

The LCS recovery for barium was at 56%. The LCS limit noted is 0 – 152%. These are extremely wide windows and the reviewer recommends considering this low bias in the use of the barium data. Data were not, however, qualified per the EPA guidance.

Detection Limits:

Note that the sediment samples for ICP were diluted 5x and those for ICPMS were diluted 10X. The analytes run by ICPMS were extremely high for lead, arsenic and vanadium. The review recommends using the ICP values that are in the raw data for these analytes, although the results were within an acceptable RPD. It is the lower values that are significantly different between the two types of analysis/instrumentation. The client will need to determine if the elevated limits meet project criteria.

Matrix Spike

Data are qualified JMS#, where # is the spike recovery. The EPA qualifier is 'J'. Data could be biased high or low proportional to the recovery. The sample results were > 4 x spike for outlier sediment spikes for aluminum, barium, iron, manganese, magnesium, zinc and calcium. Data are not qualified as the recovery is not statistically valid. The laboratory limits (65-125%) are wider than the CLP limits. The limits noted in the NFG are used for qualification. The following table lists the spike recoveries outside control limits, samples affected, and data qualifiers:

Field Duplicates:

If the UASE001 and 001D and the UASW001 and 001D are field duplicates, they meet the field duplicate precision criteria for low level and > 5 x CRQL results.

Sample ID	Elements	Qualifiers	Reason for Qualification	Review Section
All sediment samples	Barium	J-	LCS 56% – recommended, but not applied	13
All sediment samples	Sodium	J+	MS 136%	9
All sediment samples	Titanium	J-	MS 67%	

1. DELIVERABLES

All deliverables were present as specified in the Statement of Work.

Yes No X

Comments: There are Deliverable Submission Forms, but no actual laboratory log-in forms. The integrity of the samples cannot be verified. There are no courier forms or tracking identifications. Sample authentication cannot be verified.

Note that the laboratory forms do not contain times of analysis on the result forms nor on the QC and Calibration Forms. This is not uncommon for CLP-type forms, but it means that the raw data must be spot checked to verify the calibration associations. As there were no outliers, no further action is taken.

2. HOLDING TIMES AND PRESERVATION CRITERIA

All technical holding times and preservation criteria were met.

Yes X No

Comments: The samples were analyzed within specified holding times (180 days for metals and 28 days for mercury). No temperature reading for the cooler was recorded. Per the chain of custody, there were pre-printed fields that noted the sediment samples were (to be) preserved to 4 C and the waters to pH<2, but this cannot be verified as there are no log-in forms.

No shipping or receiving problems were noted in the narrative. As the client was not notified of custody or integrity issues, no further action is taken.

3. INSTRUMENT CALIBRATIONS: STANDARDS AND BLANKS

Initial instrument calibrations were performed according to SOW requirements.

Yes X No

Comments: None.

The instruments were calibrated daily and each time an analysis run was performed.

Yes X No

Comments: None.

The instruments were calibrated using one blank and the appropriate number of standards.

Yes X No

Comments: None.

4. SAMPLE ANALYSIS RESULTS

Sample analyses were entered correctly on Form Is.

Yes X No _____

Comments: None.

5. INITIAL AND CONTINUING CALIBRATION VERIFICATION

The initial and continuing calibration verification standards (ICV and CCV, respectively) met SOW requirements.

Yes X No _____

Comments: None.

The calibration verification results were within 90-110% recovery for metals, 85-115% for cyanide, and 80-120% for mercury.

Yes X No _____

Comments: None.

The continuing calibration standards were run at 10% frequency or every two hours.

Yes X No _____

Comments: None.

6. CRQL CHECK STANDARD

ICP Analysis: Standards (CRI) were analyzed at the beginning of each sample analysis run and every 20 analytical samples, immediately preceding the interferences check sample analyses, but not before ICV analysis.

Yes X No _____ NA _____

Comments: None.

The CRI recoveries were within 70-130% (50 – 150% for ICP: Sb, Pb, Tl; ICP/MS: Co, Mn, Zn) for required elements.

Yes X No _____

Comments: None.

7. BLANKS

The initial and continuing calibration blanks (ICB and CCB, respectively) met SOW requirements.

Yes _____ No X _____

Comments: There are results reported for many of the ICB and CCBs, but none are above the MDLs recorded on the result forms (the ICB/CCB forms only note the PQLs) with the exception of iron reported at 28.9 mg/kg for QC set 1010049 for ICP soils. All data are > 5 x Blank and no qualification is required.

The continuing calibration blanks were run at 10% frequency.

Yes X No _____

Comments: None.

A laboratory/preparation blank was run at the frequency of one per twenty samples, or per sample delivery group (whichever is more frequent), and for each matrix analyzed.

Yes X No _____

Comments: None

All analyzed blanks were free of contamination.

Yes _____ No X

Comments: The laboratory notes that cadmium was detected in the prep blank at < 2 x PQL. The result for cadmium is reported at 103 ug/kg. The RL for cadmium was raised from 20 ug/kg to 30 ug/kg. The client will need to determine if the elevated limits meet project criteria. All client data were > 5 x blank and no qualification is required.

8. ICP INTERFERENCE CHECK SAMPLE

The ICP interference check sample (ICS) was run at the beginning of each sample analysis run, but not prior to the ICV.

Yes X No _____

Comments: None.

Percent recovery of the analytes in the ICS solutions were within the range of 80-120% or the result was within $\pm 2x$ the CRQL.

Yes X No _____

Comments: None.

Sample results for aluminum, calcium, iron, and magnesium were less than the ICSA values.

Yes _____ No X

Comments: The ICSA value for iron is 250,000 ug/l for water or 25,000 mg/kg for soil . Iron values for the sediments were greater than the ICSA, but The QC check was well within limits and no qualifications were required.

No sample results contain potential false positives and false negatives.

Yes X No _____

Comments: None.

9. MATRIX SPIKE SAMPLE ANALYSIS

A matrix spike sample was analyzed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No _____ NA _____

Comments: UASE001 and UASW001 were used for the MS/MSD samples.

The percent recoveries (%Rs) were calculated correctly.

Yes X No _____ NA _____

Comments: None.

Spike recoveries were within the range of 75-125% (an exception is granted where the sample concentration is four times the spike concentration).

Yes _____ No X

Comments: Data are qualified JMS#, where # is the spike recovery. Data could be biased high or low proportional to the recovery. The sample results were > 4 x spike for outlier sediment spikes for aluminum, barium, iron, manganese, magnesium, zinc and calcium. Data are not qualified as the recovery is not statistically valid. The laboratory limits (65-125%) are wider than the CLP limits. The limits noted above are used for qualification. The following table lists the spike recoveries outside control limits, post digestion spike recoveries, samples affected, and data qualifiers:

Element	Matrix Spike %R	Post-Digestion %R	Samples Affected	Qualifiers
Sodium	136/ 136	104%	All sediment detects	JMS136
Titanium	67/ 71	Not in post spike	All sediment samples	JMS67

10. POST DIGEST SPIKE RECOVERY

A post-digest spike was performed for those elements that did not meet the specified criteria (i.e., Pre-digestion/pre-distillation spike recovery falls outside of control limits and sample result is less than four times the spike amount added, exception: Ag, Hg).

Yes X No _____ NA _____

Comments: See Section 9.0.

11. DUPLICATE SAMPLE ANALYSIS

Duplicate sample analysis was performed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No _____ NA _____

Comments: Duplicates and MS Duplicates are reported.

The RPDs were calculated correctly.

Yes X No _____ NA _____

Comments: None.

For sample concentrations greater than five times the CRQL, RPDs were < 20% (limits of <35% apply for soil/sediments/tailings samples).

Yes X No _____ NA _____

Comments: None.

For sample concentrations less than five times the CRQL, duplicate analysis results were within the control window of < CRQL (two times CRQL for soils).

Yes X No _____ NA _____

Comments: None.

12. ICP-MS

The ICP MS tune met SOW requirements.

Yes X No _____ NA _____

Comments: The ICP MS instrument was correctly tuned prior to analysis and all tuning criteria were met. The % RSDs were within the 5% limits for the tune. The Ba/Ba++ and Ce/CeO ratios were reported and within limits. The amu (atomic mass units) at half peak width were within limits (in the range of 0.7 – 0.8).

The minimum number of internal standards were added to the analyses and bracketed the target analyte masses.

Yes X No _____

Comments: None.

All percent relative intensities were within 60-125%.

Yes X No _____

Comments: None.

13. LABORATORY CONTROL SAMPLE

The laboratory control sample (LCS) was prepared and analyzed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No _____

Comments: Note that for sediments, the LCS does not contain titanium, strontium or molybdenum. This is not uncommon as the LCS is a standard reference soil and these analytes are not routinely present.

All results were within control limits.

Yes X No _____

Comments: The LCS recovery for barium was at 56%. The LCS limit noted is 0 – 152%. These are extremely wide windows and the reviewer recommends considering this low bias in the use of the barium data. Data were not, however, qualified per the EPA guidance.

14. ICP-SERIAL DILUTION QC

A serial dilution was performed for ICP analysis with every twenty or fewer samples of a similar matrix, or one per sample delivery group, whichever is more frequent.

Yes X No _____

Comments: None.

The serial dilution was without interference problems as defined by the SOW or NFG.

Yes X No _____

Comments: The serial dilution %Ds were less than 10% or the original sample result was less than 50> the RL.

15. ANNUAL METHOD DETECTION LIMITS (MDL)

MDLs were provided for all elements on the target analyte list.

Yes X No _____

Comments: Last updated February 2010

Reported MDLs met SOW requirements.

Yes X No _____

Comments: Note that the sediment samples for ICP were diluted 5x and those for ICPMS were diluted 10X. The analytes run by ICPMS were extremely high for lead, arsenic and vanadium. The review recommends using the ICP values that are in the raw data for these analytes, although the results were within an acceptable RPD. It is the lower values that are significantly different between the two types of analysis/ instrumentation. These can be reported in a comparison table upon request. The project manager will determine if project limits are met.

16. INTERELEMENT CORRECTION FACTORS FOR ICP

Interelement corrections for ICP were reported.

Yes No X

Comments: Interelement corrections were not included. No action was required.

17. ICP LINEAR RANGES

ICP linear ranges were reported.

Yes X No

Comments: The linear ranges were updated in February 2010.

18. PREPARATION LOG

Information on the preparation of samples for analysis was reported on laboratory bench sheets as part of the raw data deliverable.

Yes X No

Comments: None.

19. ANALYSIS RUN LOG

A Form with the required information was filled out for each analysis run in the data package.

Yes X No

Comments: None.

20. Additional Comments or Problems/Resolutions Not Addressed Above

Yes X No

Comment: For the water samples, the location ID was logged for the sample ID so the UASW001 and UASW001D distinction was not carried over into the laboratory result forms. Laboratory sample C1010004-2 should be client ID UASW001D.

Samples were collected on 10/8/2010 and relinquished on 10/11/2010. There is no record of custody for that time period.

If the UASE001 and 001D and the UASW001 and 001D are field duplicates, they meet the field duplicate precision criteria for low level and > 5 x CRQL results.

There are no rinse blanks, which would be appropriate if dedicated equipment was used.

INORGANIC DATA QUALITY ASSURANCE REVIEW**Region VIII****DATA QUALIFIER DEFINITIONS**

For the purpose of Data Validation, the following code letters and associated definitions are provided for use by the data validator to summarize the data quality. Use of additional qualifiers should be carefully considered. Definitions for all qualifiers used should be provided with each report.

GENERAL QUALIFIERS for use with both INORGANIC and ORGANIC DATA

- R - Reported value is "rejected." The data are unusable. Resampling or reanalysis may be necessary to verify the presence or absence of the compound.
- J - The associated numerical value is an estimated quantity and is the approximate concentration of the analyte in the sample.
- J+ - The associated numerical value is an estimated quantity but the result may be biased high.
- J- - The associated numerical value is an estimated quantity but the result may be biased low.
- U J - The reported quantitation limit is estimated because Quality Control criteria were not met. Element or compound may or may not be present in the sample.
- N J - Estimated value of a tentatively identified compound. (Identified with a CAS number.)
ORGANICS analysis only.
- U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

ACRONYMS

CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
CRQL	Contract Required Quantitation Limit
CRI	CRQL standard required for ICP
CV	Cold Vapor
EPA	U.S. Environmental Protection Agency
ICB	Initial Calibration Blank
ICP	Inductively Coupled Plasma
ICS	Interference Check Sample
ICSA	Interference Check Sample (Solution A)
ICSAB	Interference Check Sample (Solution AB)
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
MDL	Method Detection Limit
MS	Matrix Spike
MSD	MS Duplicate
NFG	EPA CLP National Functional Guidelines for Inorganic Data Review
PDS	Post Digestion Spike
QC	Quality Control
RPD	Relative Percent Difference
RPM	Regional Project Manager
RSD	Percent Relative Standard Deviation
SA	Spike Added
SAS	Special Analytical Services
SDG	Sample Delivery Group
SOW	Statement of Work
SR	Sample Result
SSR	Spiked Sample Result

Project Name: Upper Animas - Rush SED - Oct 2010

Certificate of Analysis

TDF #: DG-214

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	UASE001D	Date / Time Sampled:	10/08/10 00:00	Workorder:	C101003
EPA Tag No.:		Matrix:	Sediment	Lab Number:	C101003-01 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	4230		ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Arsenic	45400		ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Cadmium	990		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Chromium	3500		ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Cobalt	5360		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Lead	460000		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Molybdenum	4660		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Nickel	2840		ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Selenium	2530		ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Silver	2570		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Thallium	<997	U	ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Vanadium	19000		ug/kg dry wt	997	10	10/13/2010	SV	1010049
EPA 200.2/200.7	Aluminum	8250		mg/kg dry wt	9.97	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Barium	215		mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Beryllium	<2.49	U	mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Calcium	1550		mg/kg dry wt	49.9	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Copper	116		mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Iron	58400		mg/kg dry wt	49.9	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Magnesium	2630		mg/kg dry wt	49.9	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Manganese	801		mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Potassium	1220		mg/kg dry wt	125	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Sodium	<249	U	mg/kg dry wt	125	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Strontium	83.6		mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Titanium	23.8		mg/kg dry wt	2.49 J	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Zinc	339		mg/kg dry wt	4.99	5	10/12/2010	SW	1010049



Project Name: Upper Animas - Rush SED - Oct 2010

Certificate of Analysis

TDF #: DG-214

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASE002	Date / Time Sampled: 10/08/10 00:00	Workorder: C101003
EPA Tag No.:	Matrix: Sediment	Lab Number: C101003-02 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	5800		ug/kg dry wt	500	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Arsenic	49600		ug/kg dry wt	500	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Cadmium	674		ug/kg dry wt	99.9	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Chromium	2890		ug/kg dry wt	500	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Cobalt	2600		ug/kg dry wt	99.9	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Lead	382000		ug/kg dry wt	99.9	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Molybdenum	3410		ug/kg dry wt	99.9	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Nickel	2230		ug/kg dry wt	500	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Selenium	2760		ug/kg dry wt	500	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Silver	2820		ug/kg dry wt	99.9	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Thallium	1170		ug/kg dry wt	500	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Vanadium	18300		ug/kg dry wt	999	10	10/13/2010	SV	1010049
EPA 200.2/200.7	Aluminum	5420		mg/kg dry wt	9.99	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Barium	326		mg/kg dry wt	0.999	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Beryllium	< 2.50	U	mg/kg dry wt	0.999	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Calcium	863		mg/kg dry wt	50.0	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Copper	39.5		mg/kg dry wt	0.999	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Iron	46900		mg/kg dry wt	50.0	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Magnesium	2220		mg/kg dry wt	50.0	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Manganese	235		mg/kg dry wt	0.999	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Potassium	1380		mg/kg dry wt	125	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Sodium	< 250	U	mg/kg dry wt	125	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Strontium	90.9		mg/kg dry wt	0.999	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Titanium	17.5		mg/kg dry wt	2.50	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Zinc	199		mg/kg dry wt	5.00	5	10/12/2010	SW	1010049

DS
4/11

Project Name: Upper Animas - Rush SED - Oct 2010

Certificate of Analysis

TDF #: DG-214

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASE003	Date / Time Sampled: 10/08/10 00:00	Workorder: C101003
EPA Tag No.:	Matrix: Sediment	Lab Number: C101003-03 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	1190		ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Arsenic	19800		ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Cadmium	8840		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Chromium	4120		ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Cobalt	11500		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Lead	882000		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Molybdenum	7200		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Nickel	7950		ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Selenium	877	J	ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Silver	5080		ug/kg dry wt	99.7	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Thallium	503	J	ug/kg dry wt	499	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Vanadium	18000		ug/kg dry wt	997	10	10/13/2010	SV	1010049
EPA 200.2/200.7	Aluminum	9830		mg/kg dry wt	9.97	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Barium	128		mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Beryllium	1.58	J	mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Calcium	3420		mg/kg dry wt	49.9	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Copper	203		mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Iron	24800		mg/kg dry wt	49.9	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Magnesium	5520		mg/kg dry wt	49.9	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Manganese	8730		mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Potassium	750		mg/kg dry wt	125	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Sodium	< 249	U	mg/kg dry wt	125	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Strontium	44.9		mg/kg dry wt	0.997	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Titanium	62.7		mg/kg dry wt	2.49	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Zinc	2400		mg/kg dry wt	4.99	5	10/12/2010	SW	1010049

Project Name: Upper Animas - Rush SED - Oct 2010

Certificate of Analysis

TDF #: DG-214

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASE001	Date / Time Sampled:	10/08/10 00:00	Workorder:	C101003
EPA Tag No.:	Matrix:	Sediment	Lab Number:	C101003-04 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 200.2 / 200.8	Antimony	5410		ug/kg dry wt	494	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Arsenic	52900		ug/kg dry wt	494	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Cadmium	829		ug/kg dry wt	98.8	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Chromium	3490		ug/kg dry wt	494	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Cobalt	4590		ug/kg dry wt	98.8	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Lead	531000		ug/kg dry wt	98.8	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Molybdenum	5560		ug/kg dry wt	98.8	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Nickel	2830		ug/kg dry wt	494	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Selenium	2980		ug/kg dry wt	494	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Silver	3790		ug/kg dry wt	98.8	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Thallium	643	J	ug/kg dry wt	494	10	10/13/2010	SV	1010049
EPA 200.2 / 200.8	Vanadium	19300		ug/kg dry wt	988	10	10/13/2010	SV	1010049
EPA 200.2/200.7	Aluminum	9450		mg/kg dry wt	9.88	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Barium	261		mg/kg dry wt	0.988	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Beryllium	<2.47	U	mg/kg dry wt	0.988	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Calcium	1620		mg/kg dry wt	49.4	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Copper	158		mg/kg dry wt	0.988	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Iron	63100		mg/kg dry wt	49.4	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Magnesium	2490		mg/kg dry wt	49.4	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Manganese	602		mg/kg dry wt	0.988	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Potassium	1330		mg/kg dry wt	124	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Sodium	< 247	U	mg/kg dry wt	124	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Strontium	91.8		mg/kg dry wt	0.988	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Titanium	20.1		mg/kg dry wt	2.47 J	5	10/12/2010	SW	1010049
EPA 200.2/200.7	Zinc	364		mg/kg dry wt	4.94	5	10/12/2010	SW	1010049

"J" Qualifier indicates an estimated value

D411

Project Name: Upper Animas - Rush Water - Oct 2010

Certificate of Analysis

TDF #: DG-214

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: UASW001	Date / Time Sampled: 10/08/10 00:00	Workorder: C101004
EPA Tag No.:	Matrix: Water	Lab Number: C101004-01 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	3240		ug/L	20.0	1	10/11/2010	SW	1010050
200.7	Barium	18.1		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Calcium	107000		ug/L	100	1	10/11/2010	SW	1010050
200.7	Copper	88.6		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Iron	2170		ug/L	100	1	10/11/2010	SW	1010050
200.7	Magnesium	6790		ug/L	100	1	10/11/2010	SW	1010050
200.7	Manganese	3040		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Potassium	1200		ug/L	250	1	10/11/2010	SW	1010050
200.7	Sodium	3300		ug/L	250	1	10/11/2010	SW	1010050
200.7	Strontium	1230		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Thallium	< 50.0	U	ug/L	20.0	1	10/11/2010	SW	1010050
200.7	Titanium	< 20.0	U	ug/L	5.00	1	10/11/2010	SW	1010050
200.7	Zinc	1530		ug/L	10.0	1	10/11/2010	SW	1010050
200.8	Antimony	< 10.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Cadmium	4.54		ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Chromium	< 10.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Cobalt	12.7		ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Lead	8.38		ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Molybdenum	1.23	J	ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Nickel	6.69	J	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Selenium	< 10.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Silver	1.19	J	ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	10/12/2010	SV	1010052
2340B	Hardness	295		mg/L	2	1	10/11/2010	SW	1010050

DS 4/11

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: UASW004 D	Date/Time Sampled: 10/08/10 00:00	Workorder: C101004
EPA Tag No.:	Matrix: Water	Lab Number: C101004-02 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	3320		ug/L	20.0	1	10/11/2010	SW	1010050
200.7	Barium	18.4		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Calcium	108000		ug/L	100	1	10/11/2010	SW	1010050
200.7	Copper	91.3		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Iron	2180		ug/L	100	1	10/11/2010	SW	1010050
200.7	Magnesium	6930		ug/L	100	1	10/11/2010	SW	1010050
200.7	Manganese	3060		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Potassium	1210		ug/L	250	1	10/11/2010	SW	1010050
200.7	Sodium	3350		ug/L	250	1	10/11/2010	SW	1010050
200.7	Strontium	1260		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Thallium	< 50.0	U	ug/L	20.0	1	10/11/2010	SW	1010050
200.7	Titanium	< 20.0	U	ug/L	5.00	1	10/11/2010	SW	1010050
200.7	Zinc	1550		ug/L	10.0	1	10/11/2010	SW	1010050
200.8	Antimony	< 10.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Cadmium	4.91		ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Chromium	< 10.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Cobalt	11.5		ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Lead	7.99		ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Molybdenum	< 2.00	U	ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Nickel	5.49	J	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Selenium	< 10.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Silver	< 5.00	U	ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	10/12/2010	SV	1010052
2340B	Hardness	299		mg/L	2	1	10/11/2010	SW	1010050

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A
4/4/11

TDF #: DG-214

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID:	UASW002	Date / Time Sampled:	10/08/10 00:00	Workorder:	C101004
EPA Tag No.:		Matrix:	Water	Lab Number:	C101004-03 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	7350		ug/L	20.0	1	10/11/2010	SW	1010050
200.7	Barium	12.5		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Calcium	165000		ug/L	100	1	10/11/2010	SW	1010050
200.7	Copper	180		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Iron	7260		ug/L	100	1	10/11/2010	SW	1010050
200.7	Magnesium	10400		ug/L	100	1	10/11/2010	SW	1010050
200.7	Manganese	4570		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Potassium	1750		ug/L	250	1	10/11/2010	SW	1010050
200.7	Sodium	4350		ug/L	250	1	10/11/2010	SW	1010050
200.7	Strontium	1950		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Thallium	< 50.0	U	ug/L	20.0	1	10/11/2010	SW	1010050
200.7	Titanium	< 20.0	U	ug/L	5.00	1	10/11/2010	SW	1010050
200.7	Zinc	2590		ug/L	10.0	1	10/11/2010	SW	1010050
200.8	Antimony	< 10.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Cadmium	7.50		ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Chromium	< 10.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Cobalt	22.5		ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Lead	30.7		ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Molybdenum	< 2.00	U	ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Nickel	11.4		ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Selenium	< 10.0	U	ug/L	5.00	10	10/12/2010	SV	1010052
200.8	Silver	< 5.00	U	ug/L	1.00	10	10/12/2010	SV	1010052
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	10/12/2010	SV	1010052
2340B	Hardness	456		mg/L	2	1	10/11/2010	SW	1010050

4/4/11
KJA

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: UASW003	Date / Time Sampled: 10/08/10 00:00	Workorder: C101004
EPA Tag No.:	Matrix: Water	Lab Number: C101004-04 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	75.3		ug/L	20.0	1	10/11/2010	SW	1010050
200.7	Barium	25.5		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Calcium	49500		ug/L	100	1	10/11/2010	SW	1010050
200.7	Copper	3.69		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Iron	< 250	U	ug/L	100	1	10/11/2010	SW	1010050
200.7	Magnesium	3190		ug/L	100	1	10/11/2010	SW	1010050
200.7	Manganese	1480		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Potassium	639	J	ug/L	250	1	10/11/2010	SW	1010050
200.7	Sodium	2280		ug/L	250	1	10/11/2010	SW	1010050
200.7	Strontium	509		ug/L	2.00	1	10/11/2010	SW	1010050
200.7	Thallium	< 50.0	U	ug/L	20.0	1	10/11/2010	SW	1010050
200.7	Titanium	< 20.0	U	ug/L	5.00	1	10/11/2010	SW	1010050
200.7	Zinc	338		ug/L	10.0	1	10/11/2010	SW	1010050
200.8	Antimony	< 5.00	U	ug/L	2.50	5	10/12/2010	SV	1010052
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	10/12/2010	SV	1010052
200.8	Cadmium	0.640	J	ug/L	0.500	5	10/12/2010	SV	1010052
200.8	Chromium	< 5.00	U	ug/L	2.50	5	10/12/2010	SV	1010052
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	10/12/2010	SV	1010052
200.8	Lead	< 1.00	U	ug/L	0.500	5	10/12/2010	SV	1010052
200.8	Molybdenum	0.984	J	ug/L	0.500	5	10/12/2010	SV	1010052
200.8	Nickel	< 5.00	U	ug/L	2.50	5	10/12/2010	SV	1010052
200.8	Selenium	< 5.00	U	ug/L	2.50	5	10/12/2010	SV	1010052
200.8	Silver	< 2.50	U	ug/L	0.500	5	10/12/2010	SV	1010052
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	10/12/2010	SV	1010052
2340B	Hardness	137		mg/L	2	1	10/11/2010	SW	1010050

"J" Qualifier indicates an estimated value

REGION VIII
DATA VALIDATION REPORT
INORGANIC

Case No. / TDD No.	Site Name	Operable Unit	
C101001 / 1008-13	Upper Animas Mining District		
RPM/OSC Name			
Sabrina Forrest			
Contractor Laboratory	Contract No.	TDF No.	Laboratory DPO/Region
ESAT – TechLaw, Inc.		DG-216 surface water and mine discharge	

Review Assigned Date March 28, 2011
 Review Completion Date March 31, 2011

Data Validator Diane Short & Assoc. Review
 Report Reviewer Kent Alexander

Station	Client ID	Lab ID	Sample Type
Method 200.7 ICP, 200.8 ICPMS Total and Dissolved (D)			
A68	UASW003	C101101-01	Surface Water
A72	UASW029	C101101-02	Surface Water
CC01F	UASW030	C101101-03	Surface Water
CC01S	UASW024	C101101-04	Surface Water
CC01T	UASW023	C101101-05	Surface Water
CC02A	UASW022	C101101-06	Surface Water
CC02D	UAAD004	C101101-07	Mine Discharge (D)
CC02D	UAAD004	C101101-08	Mine Discharge
CC03C	UAAD003	C101101-09	Mine Discharge (D)
CC03C	UAAD003	C101101-10	Mine Discharge
CC03D	UASW015	C101101-11	Surface Water
CC06	UAAD002	C101101-12	Mine Discharge (D)
CC06	UAAD002	C101101-13	Mine Discharge
CC17	UASW005	C101101-14	Surface Water
CC17 DUP	UASW098	C101101-15	Surface Water
CC18	UASW007	C101101-16	Surface Water
CC19	UAAD001	C101101-17	Mine Discharge (D)
CC19	UAAD001	C101101-18	Mine Discharge

Station	Client ID	Lab ID	Sample Type
CC48	UASW035	C101101-19	Surface Water
CC48 DUP	UASW097	C101101-20	Surface Water
CCOPP-12	UASW016	C101101-21	Surface Water
M34	UASW033	C101101-22	Surface Water
UASW001	UASW001	C101101-23	Surface Water
UASW002	UASW002	C101101-24	Surface Water
UASW004	UASW004	C101101-25	Surface Water
UASW006	UASW006	C101101-26	Surface Water
UASW008	UASW008	C101101-27	Surface Water
UASW009	UASW009	C101101-28	Surface Water
UASW010	UASW010	C101101-29	Surface Water
UASW011	UASW011	C101101-30	Surface Water
UASW012	UASW012	C101101-31	Surface Water
UASW013	UASW013	C101101-32	Surface Water
UASW014	UASW014	C101101-33	Surface Water
UASW017	UASW017	C101101-34	Surface Water
UASW018	UASW018	C101101-35	Surface Water
UASW019	UASW019	C101101-36	Surface Water
UASW019 DUP	UASW099	C101101-37	Surface Water
UASW020	UASW020	C101101-38	Surface Water
UASW021	UASW021	C101101-39	Surface Water
UASW032	UASW032	C101101-40	Surface Water
UASW034	UASW034	C101101-41	Surface Water
UASW036	UASW036	C101101-42	Surface Water
UASW037	UASW037	C101101-43	Surface Water
UASW039	UASW039	C101101-44	Surface Water
UASW040	UASW040	C101101-45	Surface Water
UASW041	UASW041	C101101-46	Surface Water
UASW042	UASW042	C101101-47	Surface Water
UASW043	UASW043	C101101-48	Surface Water
UASW044	UASW044	C101101-49	Surface Water
UASW045	UASW045	C101101-50	Surface Water
UASW046	UASW046	C101101-51	Surface Water
UASW047	UASW047	C101101-52	Surface Water
UASW049	UASW049	C101101-53	Surface Water
UASW050	UASW050	C101101-54	Surface Water
UASW054	UASW054	C101101-55	Surface Water
UASW056	UASW056	C101101-56	Surface Water
UASW058	UASW058	C101101-57	Surface Water
UASW059	UASW059	C101101-58	Surface Water

Station	Client ID	Lab ID	Sample Type
Analysis for Hardness SM 2340B			
CC02D	UAAD004	C101101-07	Mine Discharge
CC03C	UAAD003	C101101-09	Mine Discharge
CC06	UAAD002	C101101-12	Mine Discharge
CC19	UAAD001	C101101-17	Mine Discharge

DATA QUALITY STATEMENT

- () Data are ACCEPTABLE according to EPA Functional guidelines with no qualifiers (flags) added by the reviewer.
() Data are UNACCEPTABLE according to EPA Functional Guidelines.
(X) Data are acceptable with QUALIFICATIONS noted in review.

Telephone/Communication Logs Enclosed? Yes _____ No X _____

CLP Project Officer Attention Required? Yes _____ No X _____ If yes, list the items that require attention:

INORGANIC DATA VALIDATION REPORT**REVIEW NARRATIVE SUMMARY**

This data package was reviewed according to "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," January 2010.

Raw data were reviewed for completeness and transcription accuracy onto the summary forms. Approximately 10-20% of the results reported in each of the samples, calibrations, and QC analyses were recalculated and verified representing all data packages received for this review. If problems were identified during the recalculation of results, a more thorough calculation check was performed.

The data package, TDF No. DG-216, consisted of 54 total surface water and mine discharge and 4 dissolved mine discharge samples for Total Recoverable Metals and Dissolved Metals by Methods 200.7 ICP and 200.8 by ICPMS. The following table lists the data qualifiers added to the sample analyses. Please see Data Qualifier Definitions, attached to the end of this report.

Station ID	Client ID	Lab ID	Analyte	Result ug/L	EPA Qualifier	DSA Qualifier
A68	UASW003	C101101-01	Silver	0.843	U	UCB.6
A68	UASW003	C101101-01	Molybdenum	3.63	U	UCB1.35
CC01S	UASW024	C101101-04	Beryllium	0.968	J+	JC110.3
CC02D	UAAD004	C101101-07	Molybdenum	1.99	U	UCB1.25
CC02D	UAAD004	C101101-08	Beryllium	4.82	J+	JC110.3
CC03C	UAAD003	C101101-09	Molybdenum	1.54	U	UCB2.5
CC03C	UAAD003	C101101-10	Beryllium	8.40	J+	JC110.3
CC03D	UASW015	C101101-11	Beryllium	6.95	J+	JC110.3
CC06	UAAD002	C101101-13	Beryllium	7.03	J+	JC110.3
CC17	UASW005	C101101-14	Molybdenum	0.535	U	UCB1.35
CC18	UASW007	C101101-16	Beryllium	3.54	J+	JC110.3
CC19	UAAD001	C101101-18	Beryllium	4.18	J+	JC110.3
CC48 DUP	UASW097	C101101-20	Beryllium	1.30	J+	JC110.3
UASW001	UASW001	C101101-23	Beryllium	1.17	J+	JC110.3
UASW002	UASW002	C101101-24	Silver	0.953	U	UCB.6
UASW002	UASW002	C101101-24	Molybdenum	1.04	U	UCB1.35
UASW034	UASW034	C101101-41	Molybdenum	0.670	U	UCB1.35
UASW036	UASW036	C101101-42	Molybdenum	0.900	U	UCB1.35
UASW036	UASW036	C101101-42	Silver	0.891	U	UCB.6
UASW037	UASW037	C101101-43	Molybdenum	0.557	U	UCB1.35

Sample Tracking:

There are Deliverable Submission Forms, but no actual laboratory log-in forms. The integrity of the samples cannot be verified. There are no courier forms or tracking identifications. Sample authentication cannot be verified.

Note that the laboratory forms do not contain dates or times of analysis on the result forms nor on the QC and Calibration Forms. This is not uncommon for CLP-type forms, but it means that the raw data must be spot checked to verify the calibration associations. This was performed only for any outliers listed on the Calibration or QC forms.

No shipping or receiving problems were noted in the narrative. As the client was not notified of custody or integrity issues, no further action is taken.

Blanks:

There are results reported for many of the ICB and CCBs, but none are above the MDLs recorded on the result forms (the ICB/CCB forms only note the PQLs) with the exception of molybdenum reported at 0.25 ug/L for QC set 1011004 and 0.27 ug/l for QC 1011092, 093 and 094; silver at 0.15 ug/l for QC 1011004 and 0.12 ug/L for QC 1011092, 093 and 094 for ICPMS. The highest associated blank is applied to noted data. All ICPMS data are diluted 5 to 10 x for analysis and the Blank must also be multiplied by 5 or 10 in order to apply it to the client data. Data are qualified 'UCB#', where # is the applied blank value. The EPA Qualifier is 'U'.

The laboratory notes that molybdenum was detected in the prep blank at < 2 x PQL. The RL for was raised from 0.20 ug/L to 0.40 ug/L. The client will need to determine if the elevated limits meet project criteria. The standard procedure for outlier blanks is to re-analyze the data with an acceptable blank.

Calibration:

One CCV was very slightly high for beryllium at 110.3%. This is noted for Sequence 1011097. The run logs had to be accessed as the Sequences are not noted on the Results forms which have on Batch numbers – and the Calibration forms do not have dates, times or Batch numbers. This is associated with Batch 1011092. Having a consistent association of samples to calibrations on the forms would be useful. Detected data for beryllium in batch 1011092 are qualified 'JC110.3' to indicate a slight high bias. The EPA qualifier is 'J'

Matrix Spike:

The sample results were > 4 x spike for outlier spikes for manganese, magnesium, zinc and calcium. Data are not qualified as the recovery is not statistically valid. The laboratory limits (65-125%) are wider than the CLP limits. The limits noted above are used for qualification. After consideration of the 4x recoveries, no data are qualified.

Detection Limits:

Note that the samples for ICPMS were diluted 5x to 10x. The analytes run by ICPMS were extremely high for lead, cadmium and sometimes copper. The review recommends using the ICP values that are in the raw data for these analytes, although the results were within an acceptable RPD. It is the lower values that are significantly different between the two types of analysis/instrumentation. The client will need to determine if the elevated limits meet project criteria.

Sample ID	Elements	Qualifiers	Reason for Qualification	Review Section
All detected data in QC set 1011092	Beryllium	J+	C110.3	5
All detected data in QC set 1011004	Silver		None, non-detect	7

Sample ID	Elements	Qualifiers	Reason for Qualification	Review Section
All detected data in QC set 1011092, 093, 094	Silver	U	CB.12 (multiplied by dilution factor)	7
All detected data in QC set 1011004	Molybdenum	U	CB.25 (multiplied by dilution factor)	7
All detected data in QC set 1011092, 093, 094	Molybdenum	U	CB.27 (multiplied by dilution factor)	7

There are no rinse blanks, which is acceptable for dedicated sampling equipment.

Field duplicates were identified in the EDD and fully meet field RPD criteria of 20% RPD or $\pm 1x$ CRQL for waters.:

UASW005 and 098
UASW035 and 097
UASW019 and 099

1. DELIVERABLES

All deliverables were present as specified in the Statement of Work.

Yes No X

Comments: There are Deliverable Submission Forms, but no actual laboratory log-in forms. The integrity of the samples cannot be verified. There are no courier forms or tracking identifications. Sample authentication cannot be verified.

Note that the laboratory forms do not contain dates or times of analysis on the result forms nor on the QC and Calibration Forms. This is not uncommon for CLP-type forms, but it means that the raw data must be spot checked to verify the calibration associations. This was performed only for any outliers listed on the Calibration or QC forms.

2. HOLDING TIMES AND PRESERVATION CRITERIA

All technical holding times and preservation criteria were met.

Yes X No

Comments: The samples were analyzed within specified holding times (180 days for metals and 28 days for mercury). No temperature reading for the cooler was recorded. Per the chain of custody, there were pre-printed fields that noted the sediment samples were (to be) preserved to 4 C and the waters to pH<2, but this cannot be verified as there are no log-in forms.

No shipping or receiving problems were noted in the narrative. As the client was not notified of custody or integrity issues, no further action is taken.

3. INSTRUMENT CALIBRATIONS: STANDARDS AND BLANKS

Initial instrument calibrations were performed according to SOW requirements.

Yes X No

Comments: None

The instruments were calibrated daily and each time an analysis run was performed.

Yes X No

Comments: None.

The instruments were calibrated using one blank and the appropriate number of standards.

Yes X No

Comments: None.

4. SAMPLE ANALYSIS RESULTS

Sample analyses were entered correctly on Form Is.

Yes X No _____

Comments: Per the 10% raw data check.

5. INITIAL AND CONTINUING CALIBRATION VERIFICATION

The initial and continuing calibration verification standards (ICV and CCV, respectively) met SOW requirements.

Yes X No _____

Comments: None

The calibration verification results were within 90-110% recovery for metals, 85-115% for cyanide, and 80-120% for mercury.

Yes _____ No X _____

Comments: One CCV was very slightly high for beryllium at 110.3%. This is noted for Sequence 1011097. The run logs had to be accessed as the Sequences are not noted on the Results forms which have on Batch numbers – and the Calibration forms do not have dates, times or Batch numbers. This is associated with Batch 1011092. Having a consistent association of samples to calibrations on the forms would be useful. Detected data for beryllium in batch 1011092 are qualified 'JC110.3' to indicate a slight high bias. The EPA qualifier is 'J+'.

The continuing calibration standards were run at 10% frequency or every two hours.

Yes X No _____

Comments: None.

6. CRQL CHECK STANDARD

ICP Analysis: Standards (CRI) were analyzed at the beginning of each sample analysis run and every 20 analytical samples, immediately preceding the interferences check sample analyses, but not before ICV analysis.

Yes X No _____ NA _____

Comments: None.

The CRI recoveries were within 70-130% (50 – 150% for ICP: Sb, Pb, Tl; ICP/MS: Co, Mn, Zn) for required elements.

Yes X No _____

Comments: None.

7. BLANKS

The initial and continuing calibration blanks (ICB and CCB, respectively) met SOW requirements.

Yes No X

Comments: There are results reported for many of the ICB and CCBs, but none are above the MDLs recorded on the result forms (the ICB/CCB forms only note the PQLs) with the exception of molybdenum reported at 0.25 ug/L for QC set 1011004 and 0.27 ug/l for QC 1011092, 093 and 094; silver at 0.15 ug/l for QC 1011004 and 0.12 ug/L for QC 1011092, 093 and 094 for ICPMS. The highest associated blank is applied to noted data. All ICPMS data are diluted 5 to 10 x for analysis and the Blank must also be multiplied by 5 or 10 in order to apply it to the client data. Data are qualified 'UCB#', where # is the applied blank value. The EPA Qualifier is 'U'.

The continuing calibration blanks were run at 10% frequency.

Yes X No

Comments: None.

A laboratory/preparation blank was run at the frequency of one per twenty samples, or per sample delivery group (whichever is more frequent), and for each matrix analyzed.

Yes X No

Comments: None

All analyzed blanks were free of contamination.

Yes No X

Comments: The laboratory notes that molybdenum was detected in the prep blank at < 2 x PQL. The RL for was raised from 0.20 ug/L to 0.40 ug/L. It was also detected in the calibration blanks. The client will need to determine if the elevated limits meet project criteria. The standard procedure for outlier blanks is to re-analyze the data with an acceptable blank. See calibration blank section.

8. ICP INTERFERENCE CHECK SAMPLE

The ICP interference check sample (ICS) was run at the beginning of each sample analysis run, but not prior to the ICV.

Yes X No

Comments: None.

Percent recovery of the analytes in the ICS solutions were within the range of 80-120% or the result was within $\pm 2x$ the CRQL.

Yes X No

Comments: None.

Sample results for aluminum, calcium, iron, and magnesium were less than the ICSA values.

Yes X No _____

Comments: None

No sample results contain potential false positives and false negatives.

Yes X No _____

Comments: None.

9. MATRIX SPIKE SAMPLE ANALYSIS

A matrix spike sample was analyzed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No _____ NA _____

Comments: Frequency met with client samples.

The percent recoveries (%Rs) were calculated correctly.

Yes X No _____ NA _____

Comments: None.

Spike recoveries were within the range of 75-125% (an exception is granted where the sample concentration is four times the spike concentration).

Yes X No _____

Comments: The sample results were > 4 x spike for outlier spikes for manganese, magnesium, zinc and calcium. Data are not qualified as the recovery is not statistically valid. The laboratory limits (65-125%) are wider than the CLP limits. The limits noted above are used for qualification. After consideration of the 4x recoveries, no data are qualified.

10. POST DIGEST SPIKE RECOVERY

A post-digest spike was performed for those elements that did not meet the specified criteria (i.e., Pre-digestion/pre-distillation spike recovery falls outside of control limits and sample result is less than four times the spike amount added, exception: Silver, mercury).

Yes X No _____ NA _____

Comments: See Section 9.0.

11. DUPLICATE SAMPLE ANALYSIS

Duplicate sample analysis was performed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No _____ NA _____

Comments: Duplicates and MS Duplicates are reported.

The RPDs were calculated correctly.

Yes X No _____ NA _____

Comments: None.

For sample concentrations greater than five times the CRQL, RPDs were < 20% (limits of <35% apply for soil/sediments/tailings samples).

Yes X No _____ NA _____

Comments: None.

For sample concentrations less than five times the CRQL, duplicate analysis results were within the control window of < CRQL (two times CRQL for soils).

Yes X No _____ NA _____

Comments: None.

12. ICP-MS

The ICP MS tune met SOW requirements.

Yes X No _____ NA _____

Comments: The ICP MS instrument was correctly tuned prior to analysis and all tuning criteria were met. The % RSDs were within the 5% limits for the tune. The Ba/Ba++ and Ce/CeO ratios were reported and within limits. The amu (atomic mass units) at half peak width were within limits (in the range of 0.7 – 0.8).

The minimum number of internal standards were added to the analyses and bracketed the target analyte masses.

Yes X No _____

Comments: None.

All percent relative intensities were within 60-125%.

Yes X No _____

Comments: Per the 10% check of project data.

13. LABORATORY CONTROL SAMPLE

The laboratory control sample (LCS) was prepared and analyzed with every twenty or fewer samples of a similar matrix, or one per sample delivery group (whichever is more frequent).

Yes X No _____

All results were within control limits.

Yes X No _____

Comments: None

14. ICP-SERIAL DILUTION QC

A serial dilution was performed for ICP analysis with every twenty or fewer samples of a similar matrix, or one per sample delivery group, whichever is more frequent.

Yes X No _____

Comments: None.

The serial dilution was without interference problems as defined by the SOW or NFG.

Yes X No _____

Comments: The serial dilution %Ds were less than 10% or the original sample result was less than 50> the RL.

15. ANNUAL METHOD DETECTION LIMITS (MDL)

MDLs were provided for all elements on the target analyte list.

Yes X No _____

Comments: Last updated February 2010

Reported MDLs met SOW requirements.

Yes X No _____

Comments: Note that the samples for ICPMS were diluted 5x to 10x. The analytes run by ICPMS were extremely high for lead, cadmium and sometimes copper. The review recommends using the ICP values that are in the raw data for these analytes, although the results were within an acceptable RPD. It is the lower values that are significantly different between the two types of analysis/instrumentation. The client will need to determine if the elevated limits meet project criteria.

16. INTERELEMENT CORRECTION FACTORS FOR ICP

Interelement corrections for ICP were reported.

Yes No X

Comments: Interelement corrections were not included. No action was required.

17. ICP LINEAR RANGES

ICP linear ranges were reported.

Yes X No

Comments: The linear ranges were updated in February 2010.

18. PREPARATION LOG

Information on the preparation of samples for analysis was reported on laboratory bench sheets as part of the raw data deliverable.

Yes X No

Comments: None.

19. ANALYSIS RUN LOG

A Form with the required information was filled out for each analysis run in the data package.

Yes X No

Comments: None.

20. Additional Comments or Problems/Resolutions Not Addressed Above

Yes X No

Comment:

There are no rinse blanks, which would be appropriate if dedicated equipment was used.
Field duplicates were identified in the EDD and fully meet field RPD criteria of 20% RPD or ± 1 x CRQL for waters.:
UASW005 and 098
UASW035 and 097
UASW019 and 099

INORGANIC DATA QUALITY ASSURANCE REVIEW**Region VIII****DATA QUALIFIER DEFINITIONS**

For the purpose of Data Validation, the following code letters and associated definitions are provided for use by the data validator to summarize the data quality. Use of additional qualifiers should be carefully considered. Definitions for all qualifiers used should be provided with each report.

GENERAL QUALIFIERS for use with both INORGANIC and ORGANIC DATA

- R - Reported value is "rejected." The data are unusable. Resampling or reanalysis may be necessary to verify the presence or absence of the compound.
- J - The associated numerical value is an estimated quantity and is the approximate concentration of the analyte in the sample.
- J+ - The associated numerical value is an estimated quantity but the result may be biased high.
- J- - The associated numerical value is an estimated quantity but the result may be biased low.
- U J - The reported quantitation limit is estimated because Quality Control criteria were not met. Element or compound may or may not be present in the sample.
- N J - Estimated value of a tentatively identified compound. (Identified with a CAS number.)
ORGANICS analysis only.
- U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

ACRONYMS

CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
CRQL	Contract Required Quantitation Limit
CRI	CRQL standard required for ICP
CV	Cold Vapor
EPA	U.S. Environmental Protection Agency
ICB	Initial Calibration Blank
ICP	Inductively Coupled Plasma
ICS	Interference Check Sample
ICSA	Interference Check Sample (Solution A)
ICSAB	Interference Check Sample (Solution AB)
ICV	Initial Calibration Verification
LCS	Laboratory Control Sample
MDL	Method Detection Limit
MS	Matrix Spike
MSD	MS Duplicate
NFG	EPA CLP National Functional Guidelines for Inorganic Data Review
PDS	Post Digestion Spike
QC	Quality Control
RPD	Relative Percent Difference
RPM	Regional Project Manager
RSD	Percent Relative Standard Deviation
SA	Spike Added
SAS	Special Analytical Services
SDG	Sample Delivery Group
SOW	Statement of Work
SR	Sample Result
SSR	Spiked Sample Result

Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	A68	Date / Time Sampled:	10/26/10 00:00	Workorder:	C101101
EPA Tag No.:	No Tag Prefix-3	Matrix:	Surface Water	Lab Number:	C101101-01 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	86.2		ug/L	20.0	1	11/18/2010	SW	1011092
200.7	Calcium	54300		ug/L	100	1	11/18/2010	SW	1011092
200.7	Iron	< 250	U	ug/L	100	1	11/18/2010	SW	1011092
200.7	Magnesium	3290		ug/L	100	1	11/18/2010	SW	1011092
200.7	Manganese	1940		ug/L	2.00	1	11/18/2010	SW	1011092
200.7	Potassium	614	J	ug/L	250	1	11/18/2010	SW	1011092
200.7	Sodium	2460		ug/L	250	1	11/18/2010	SW	1011092
200.7	Zinc	449		ug/L	10.0	1	11/18/2010	SW	1011092
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/18/2010	SV	1011092
200.8	Beryllium	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Cadmium	1.82		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Lead	0.790	J	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Molybdenum	3.63		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Silver	0.843	J	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Thallium	15.4		ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/18/2010	SV	1011092

Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #:

DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: A72	Date / Time Sampled: 10/25/10 00:00	Workorder: C101101
EPA Tag No.: No Tag Prefix-12	Matrix: Surface Water	Lab Number: C101101-02 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	1300		ug/L	20.0	1	11/18/2010	SW	1011092
200.7	Calcium	87500		ug/L	100	1	11/18/2010	SW	1011092
200.7	Iron	8140		ug/L	100	1	11/18/2010	SW	1011092
200.7	Magnesium	7330		ug/L	100	1	11/18/2010	SW	1011092
200.7	Manganese	796		ug/L	2.00	1	11/18/2010	SW	1011092
200.7	Potassium	1620		ug/L	250	1	11/18/2010	SW	1011092
200.7	Sodium	5580		ug/L	250	1	11/18/2010	SW	1011092
200.7	Zinc	94.6		ug/L	10.0	1	11/18/2010	SW	1011092
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/18/2010	SV	1011092
200.8	Beryllium	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Cadmium	0.653	J	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Cobalt	3.84		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Lead	8.74		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/18/2010	SV	1011092

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	CC01F	Date / Time Sampled:	10/31/10 13:00	Workorder:	C101101
EPA Tag No.:	No Tag Prefix-55	Matrix:	Surface Water	Lab Number:	C101101-03 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	69.0		ug/L	20.0	1	11/18/2010	SW	1011092
200.7	Calcium	46200		ug/L	100	1	11/18/2010	SW	1011092
200.7	Iron	< 250	U	ug/L	100	1	11/18/2010	SW	1011092
200.7	Magnesium	4060		ug/L	100	1	11/18/2010	SW	1011092
200.7	Manganese	120		ug/L	2.00	1	11/18/2010	SW	1011092
200.7	Potassium	294	J	ug/L	250	1	11/18/2010	SW	1011092
200.7	Sodium	1230		ug/L	250	1	11/18/2010	SW	1011092
200.7	Zinc	556		ug/L	10.0	1	11/18/2010	SW	1011092
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Barium	30.8	J	ug/L	25.0	5	11/18/2010	SV	1011092
200.8	Beryllium	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Cadmium	3.09		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Copper	25.2		ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Lead	0.620	J	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/18/2010	SV	1011092

S44

Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: CC01S	Date / Time Sampled: 10/31/10 12:04	Workorder: C101101
EPA Tag No.: No Tag Prefix-54	Matrix: Surface Water	Lab Number: C101101-04 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	2180		ug/L	20.0	1	11/18/2010	SW	1011092
200.7	Calcium	72700		ug/L	100	1	11/18/2010	SW	1011092
200.7	Iron	<250	U	ug/L	100	1	11/18/2010	SW	1011092
200.7	Magnesium	9760		ug/L	100	1	11/18/2010	SW	1011092
200.7	Manganese	977		ug/L	2.00	1	11/18/2010	SW	1011092
200.7	Potassium	561	J	ug/L	250	1	11/18/2010	SW	1011092
200.7	Sodium	1340		ug/L	250	1	11/18/2010	SW	1011092
200.7	Zinc	3230		ug/L	10.0	1	11/18/2010	SW	1011092
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Barium	34.7	J	ug/L	25.0	5	11/18/2010	SV	1011092
200.8	Beryllium	0.968	J	ug/L	0.500 ^{+/-}	5	11/18/2010	SV	1011092
200.8	Cadmium	16.9		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Copper	38.6		ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Lead	2.21		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Nickel	12.1		ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/18/2010	SV	1011092

SF
4K

Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: CC01F	Date / Time Sampled: 10/31/10 11:50	Workorder: C101101
EPA Tag No.: No Tag Prefix-53	Matrix: Surface Water	Lab Number: C101101-05 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	1580		ug/L	20.0	1	11/18/2010	SW	1011092
200.7	Calcium	55400		ug/L	100	1	11/18/2010	SW	1011092
200.7	Iron	< 250	U	ug/L	100	1	11/18/2010	SW	1011092
200.7	Magnesium	7020		ug/L	100	1	11/18/2010	SW	1011092
200.7	Manganese	633		ug/L	2.00	1	11/18/2010	SW	1011092
200.7	Potassium	482	J	ug/L	250	1	11/18/2010	SW	1011092
200.7	Sodium	1280		ug/L	250	1	11/18/2010	SW	1011092
200.7	Zinc	2750		ug/L	10.0	1	11/18/2010	SW	1011092
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Barium	29.1	J	ug/L	25.0	5	11/18/2010	SV	1011092
200.8	Beryllium	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Cadmium	13.6		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Copper	102		ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Lead	2.03		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Nickel	6.06		ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/18/2010	SV	1011092

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: CC02A	Date / Time Sampled: 10/31/10 11:19	Workorder: C101101
EPA Tag No.: No Tag Prefix-52	Matrix: Surface Water	Lab Number: C101101-06 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	1430		ug/L	20.0	1	11/18/2010	SW	1011092
200.7	Calcium	62000		ug/L	100	1	11/18/2010	SW	1011092
200.7	Iron	< 250	U	ug/L	100	1	11/18/2010	SW	1011092
200.7	Magnesium	8310		ug/L	100	1	11/18/2010	SW	1011092
200.7	Manganese	111		ug/L	2.00	1	11/18/2010	SW	1011092
200.7	Potassium	634	J	ug/L	250	1	11/18/2010	SW	1011092
200.7	Sodium	1260		ug/L	250	1	11/18/2010	SW	1011092
200.7	Zinc	3080		ug/L	10.0	1	11/18/2010	SW	1011092
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Barium	39.4	J	ug/L	25.0	5	11/18/2010	SV	1011092
200.8	Beryllium	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Cadmium	10.9		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Copper	22.3		ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Lead	2.54		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Nickel	9.47		ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/18/2010	SV	1011092

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: CC02D
EPA Tag No.: No Tag Prefix-38Date / Time Sampled: 10/29/10 15:00
Matrix: Mine DischargeWorkorder: C101101
Lab Number: C101101-07 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	3300		ug/L	20.0	1	11/23/2010	SW	1011103
200.7	Calcium	211000		ug/L	100	1	11/23/2010	SW	1011103
200.7	Iron	27200		ug/L	100	1	11/23/2010	SW	1011103
200.7	Magnesium	13200		ug/L	100	1	11/23/2010	SW	1011103
200.7	Manganese	29100		ug/L	2.00	1	11/23/2010	SW	1011103
200.7	Potassium	2000		ug/L	250	1	11/23/2010	SW	1011103
200.7	Sodium	6210		ug/L	250	1	11/23/2010	SW	1011103
200.7	Zinc	32700		ug/L	10.0	1	11/23/2010	SW	1011103
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/23/2010	SV	1011104
200.8	Arsenic	2.72	J	ug/L	2.50	5	11/23/2010	SV	1011104
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/23/2010	SV	1011104
200.8	Beryllium	4.49		ug/L	0.500	5	11/23/2010	SV	1011104
200.8	Cadmium	50.9		ug/L	0.500	5	11/23/2010	SV	1011104
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/23/2010	SV	1011104
200.8	Cobalt	22.5		ug/L	0.500	5	11/23/2010	SV	1011104
200.8	Copper	20.9		ug/L	2.50	5	11/23/2010	SV	1011104
200.8	Lead	255		ug/L	0.500	5	11/23/2010	SV	1011104
200.8	Molybdenum	1.99	J	ug/L	0.500	5	11/23/2010	SV	1011104
200.8	Nickel	8.30		ug/L	2.50	5	11/23/2010	SV	1011104
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/23/2010	SV	1011104
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/23/2010	SV	1011104
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/23/2010	SV	1011104
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/23/2010	SV	1011104
2340B	Hardness	582		mg/L	2	1	11/23/2010	SW	1011103

DS
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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #:

DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: CC02D
EPA Tag No.: No Tag Prefix-42Date / Time Sampled: 10/29/10 15:00
Matrix: Mine DischargeWorkorder: CI01101
Lab Number: CI01101-08 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	3330		ug/L	20.0	1	11/18/2010	SW	1011092
200.7	Calcium	212000		ug/L	100	1	11/18/2010	SW	1011092
200.7	Iron	31900		ug/L	100	1	11/18/2010	SW	1011092
200.7	Magnesium	13200		ug/L	100	1	11/18/2010	SW	1011092
200.7	Manganese	28700		ug/L	2.00	1	11/18/2010	SW	1011092
200.7	Potassium	2040		ug/L	250	1	11/18/2010	SW	1011092
200.7	Sodium	6280		ug/L	250	1	11/18/2010	SW	1011092
200.7	Zinc	31300		ug/L	10.0	1	11/18/2010	SW	1011092
200.8	Antimony	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Barium	< 100	U	ug/L	50.0	10	11/18/2010	SV	1011092
200.8	Beryllium	4.82		ug/L	1.00 ⁵⁺	10	11/18/2010	SV	1011092
200.8	Cadmium	55.0		ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Chromium	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Cobalt	22.3		ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Copper	15.3		ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Lead	271		ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Molybdenum	< 2.00	U	ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Nickel	6.74	J	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Selenium	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Silver	< 5.00	U	ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Thallium	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	11/18/2010	SV	1011092

DS
H/C

Project Name: Upper Animas - Water - Oct 2010
TDF #: DG-216

Certificate of Analysis

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: CC03C Date / Time Sampled: 10/28/10 10:30
EPA Tag No.: No Tag Prefix-37 Matrix: Mine Discharge Workorder: C101101
Lab Number: C101101-09 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	4620		ug/L	20.0	1	11/23/2010	SW	1011103
200.7	Calcium	442000		ug/L	100	1	11/23/2010	SW	1011103
200.7	Iron	101000		ug/L	100	1	11/23/2010	SW	1011103
200.7	Magnesium	28600		ug/L	100	1	11/23/2010	SW	1011103
200.7	Manganese	30500		ug/L	2.00	1	11/23/2010	SW	1011103
200.7	Potassium	1840		ug/L	250	1	11/23/2010	SW	1011103
200.7	Sodium	8530		ug/L	250	1	11/23/2010	SW	1011103
200.7	Zinc	15400		ug/L	10.0	1	11/23/2010	SW	1011103
200.8	Antimony	< 10.0	U	ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Barium	< 100	U	ug/L	50.0	10	11/23/2010	SV	1011104
200.8	Beryllium	6.45		ug/L	1.00	10	11/23/2010	SV	1011104
200.8	Cadmium	48.7		ug/L	1.00	10	11/23/2010	SV	1011104
200.8	Chromium	< 10.0	U	ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Cobalt	102		ug/L	1.00	10	11/23/2010	SV	1011104
200.8	Copper	< 10.0	U	ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Lead	98.7		ug/L	1.00	10	11/23/2010	SV	1011104
200.8	Molybdenum	1.54	J	ug/L	1.00	10	11/23/2010	SV	1011104
200.8	Nickel	42.6		ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Selenium	< 10.0	U	ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Silver	< 5.00	U	ug/L	1.00	10	11/23/2010	SV	1011104
200.8	Thallium	< 10.0	U	ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	11/23/2010	SV	1011104
2340B	Hardness	1220		mg/L	2	1	11/23/2010	SW	1011103

Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: CC03C Date / Time Sampled: 10/28/10 10:30
 EPA Tag No.: No Tag Prefix-41 Matrix: Mine Discharge Workorder: C101101
 Lab Number: C101101-10

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	4680		ug/L	20.0	1	11/18/2010	SW	1011092
200.7	Calcium	441000		ug/L	100	1	11/18/2010	SW	1011092
200.7	Iron	102000		ug/L	100	1	11/18/2010	SW	1011092
200.7	Magnesium	28700		ug/L	100	1	11/18/2010	SW	1011092
200.7	Manganese	30700		ug/L	2.00	1	11/18/2010	SW	1011092
200.7	Potassium	1860		ug/L	250	1	11/18/2010	SW	1011092
200.7	Sodium	8730		ug/L	250	1	11/18/2010	SW	1011092
200.7	Zinc	15500		ug/L	10.0	1	11/18/2010	SW	1011092
200.8	Antimony	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Barium	< 100	U	ug/L	50.0	10	11/18/2010	SV	1011092
200.8	Beryllium	8.40		ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Cadmium	53.1		ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Chromium	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Cobalt	97.4		ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Copper	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Lead	107		ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Molybdenum	< 2.00	U	ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Nickel	38.2		ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Selenium	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Silver	< 5.00	U	ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Thallium	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	11/18/2010	SV	1011092

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	CC03D	Date/Time Sampled:	10/28/10 10:00	Workorder:	C101101
EPA Tag No.:	No Tag Prefix-46	Matrix:	Surface Water	Lab Number:	C101101-11 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	3040		ug/L	20.0	1	11/18/2010	SW	1011092
200.7	Calcium	450000		ug/L	100	1	11/18/2010	SW	1011092
200.7	Iron	95200		ug/L	100	1	11/18/2010	SW	1011092
200.7	Magnesium	28900		ug/L	100	1	11/18/2010	SW	1011092
200.7	Manganese	31900		ug/L	2.00	1	11/18/2010	SW	1011092
200.7	Potassium	1850		ug/L	250	1	11/18/2010	SW	1011092
200.7	Sodium	8800		ug/L	250	1	11/18/2010	SW	1011092
200.7	Zinc	15500		ug/L	10.0	1	11/18/2010	SW	1011092
200.8	Antimony	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Barium	< 100	U	ug/L	50.0	10	11/18/2010	SV	1011092
200.8	Beryllium	6.95		ug/L	1.00 ⁵⁺	10	11/18/2010	SV	1011092
200.8	Cadmium	42.2		ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Chromium	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Cobalt	95.9		ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Copper	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Lead	13.1		ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Molybdenum	< 2.00	U	ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Nickel	38.6		ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Selenium	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Silver	< 5.00	U	ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Thallium	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	11/18/2010	SV	1011092

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: CC06

Date / Time Sampled: 10/28/10 13:39

Workorder: C101101

EPA Tag No.: No Tag Prefix-36

Matrix: Mine Discharge

Lab Number: C101101-12 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	18300		ug/L	20.0	1	11/23/2010	SW	1011103
200.7	Calcium	395000		ug/L	100	1	11/23/2010	SW	1011103
200.7	Iron	71600		ug/L	100	1	11/23/2010	SW	1011103
200.7	Magnesium	22600		ug/L	100	1	11/23/2010	SW	1011103
200.7	Manganese	27800		ug/L	2.00	1	11/23/2010	SW	1011103
200.7	Potassium	1790		ug/L	250	1	11/23/2010	SW	1011103
200.7	Sodium	5260		ug/L	250	1	11/23/2010	SW	1011103
200.7	Zinc	18600		ug/L	10.0	1	11/23/2010	SW	1011103
200.8	Antimony	< 10.0	U	ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Barium	< 100	U	ug/L	50.0	10	11/23/2010	SV	1011104
200.8	Beryllium	5.98		ug/L	1.00	10	11/23/2010	SV	1011104
200.8	Cadmium	53.0		ug/L	1.00	10	11/23/2010	SV	1011104
200.8	Chromium	< 10.0	U	ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Cobalt	84.4		ug/L	1.00	10	11/23/2010	SV	1011104
200.8	Copper	4210		ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Lead	5.66		ug/L	1.00	10	11/23/2010	SV	1011104
200.8	Molybdenum	< 4.00	J	ug/L	1.00	10	11/23/2010	SV	1011104
200.8	Nickel	35.4		ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Selenium	< 10.0	U	ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Silver	< 5.00	U	ug/L	1.00	10	11/23/2010	SV	1011104
200.8	Thallium	< 10.0	U	ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	11/23/2010	SV	1011104
2340B	Hardness	1080		mg/L	2	1	11/23/2010	SW	1011103

Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: CC06	Date / Time Sampled: 10/28/10 13:39	Workorder: C101101
EPA Tag No.: No Tag Prefix-40	Matrix: Mine Discharge	Lab Number: C101101-13 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	18500		ug/L	20.0	1	11/18/2010	SW	1011092
200.7	Calcium	398000		ug/L	100	1	11/18/2010	SW	1011092
200.7	Iron	73700		ug/L	100	1	11/18/2010	SW	1011092
200.7	Magnesium	22800		ug/L	100	1	11/18/2010	SW	1011092
200.7	Manganese	28000		ug/L	2.00	1	11/18/2010	SW	1011092
200.7	Potassium	1810		ug/L	250	1	11/18/2010	SW	1011092
200.7	Sodium	5350		ug/L	250	1	11/18/2010	SW	1011092
200.7	Zinc	18700		ug/L	10.0	1	11/18/2010	SW	1011092
200.8	Antimony	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Barium	< 100	U	ug/L	50.0	10	11/18/2010	SV	1011092
200.8	Beryllium	7.03		ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Cadmium	54.9		ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Chromium	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Cobalt	79.1		ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Copper	4030		ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Lead	6.82		ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Molybdenum	< 2.00	U	ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Nickel	31.2		ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Selenium	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Silver	< 5.00	U	ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Thallium	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	11/18/2010	SV	1011092

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	CC17	Date / Time Sampled:	10/27/10 00:00	Workorder:	C101101
EPA Tag No.:	No Tag Prefix-5	Matrix:	Surface Water	Lab Number:	C101101-14 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	720		ug/L	20.0	1	11/18/2010	SW	1011092
200.7	Calcium	162000		ug/L	100	1	11/18/2010	SW	1011092
200.7	Iron	3230		ug/L	100	1	11/18/2010	SW	1011092
200.7	Magnesium	8230		ug/L	100	1	11/18/2010	SW	1011092
200.7	Manganese	1840		ug/L	2.00	1	11/18/2010	SW	1011092
200.7	Potassium	747	J	ug/L	250	1	11/18/2010	SW	1011092
200.7	Sodium	3470		ug/L	250	1	11/18/2010	SW	1011092
200.7	Zinc	647		ug/L	10.0	1	11/18/2010	SW	1011092
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/18/2010	SV	1011092
200.8	Beryllium	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Cadmium	2.73		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Cobalt	7.71		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Copper	8.83		ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Lead	0.643	J	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Molybdenum	0.535	J	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/18/2010	SV	1011092

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Project Name: Upper Animas - Water - Oct 2010
TDF #: DG-216

Certificate of Analysis

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: CC17 DUP
EPA Tag No.: No Tag Prefix-34.

Date / Time Sampled: 10/27/10 00:00
Matrix: Surface Water

Workorder: C101101
Lab Number: C101101-15 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	572		ug/L	20.0	1	11/18/2010	SW	1011092
200.7	Calcium	163000		ug/L	100	1	11/18/2010	SW	1011092
200.7	Iron	3090		ug/L	100	1	11/18/2010	SW	1011092
200.7	Magnesium	8340		ug/L	100	1	11/18/2010	SW	1011092
200.7	Manganese	1860		ug/L	2.00	1	11/18/2010	SW	1011092
200.7	Potassium	752	J	ug/L	250	1	11/18/2010	SW	1011092
200.7	Sodium	3520		ug/L	250	1	11/18/2010	SW	1011092
200.7	Zinc	661		ug/L	10.0	1	11/18/2010	SW	1011092
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/18/2010	SV	1011092
200.8	Beryllium	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Cadmium	2.41		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Cobalt	7.36		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Copper	6.50		ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/18/2010	SV	1011092

Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #:

DG-216**Metals (Total Recov) by EPA 200/7000 Series Methods**

Station ID: CC18

Date / Time Sampled: 10/27/10 00:00

Workorder: C101101

EPA Tag No.: No Tag Prefix-7

Matrix: Surface Water

Lab Number: C101101-16-A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	5730		ug/L	20.0	1	11/18/2010	SW	1011092
200.7	Calcium	450000		ug/L	100	1	11/18/2010	SW	1011092
200.7	Iron	131000		ug/L	100	1	11/18/2010	SW	1011092
200.7	Magnesium	31400		ug/L	100	1	11/18/2010	SW	1011092
200.7	Manganese	43000		ug/L	2.00	1	11/18/2010	SW	1011092
200.7	Potassium	1740		ug/L	250	1	11/18/2010	SW	1011092
200.7	Sodium	9500		ug/L	250	1	11/18/2010	SW	1011092
200.7	Zinc	18800		ug/L	10.0	1	11/18/2010	SW	1011092
200.8	Antimony	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Barium	< 100	U	ug/L	50.0	10	11/18/2010	SV	1011092
200.8	Beryllium	3.54		ug/L	1.00 <i>S+</i>	10	11/18/2010	SV	1011092
200.8	Cadmium	2.54		ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Chromium	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Cobalt	136		ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Copper	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Lead	1.52	J	ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Molybdenum	< 2.00	U	ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Nickel	46.9		ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Selenium	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Silver	< 5.00	U	ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Thallium	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	11/18/2010	SV	1011092

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #:

DG-216

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: CC19	Date / Time Sampled: 10/27/10 10:05	Workorder: C101101
EPA Tag No.: No Tag Prefix-35	Matrix: Mine Discharge	Lab Number: C101101-17 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	4990		ug/L	20.0	1	11/23/2010	SW	1011103
200.7	Calcium	434000		ug/L	100	1	11/23/2010	SW	1011103
200.7	Iron	133000		ug/L	100	1	11/23/2010	SW	1011103
200.7	Magnesium	29900		ug/L	100	1	11/23/2010	SW	1011103
200.7	Manganese	41700		ug/L	2.00	1	11/23/2010	SW	1011103
200.7	Potassium	1680		ug/L	250	1	11/23/2010	SW	1011103
200.7	Sodium	9080		ug/L	250	1	11/23/2010	SW	1011103
200.7	Zinc	18100		ug/L	10.0	1	11/23/2010	SW	1011103
200.8	Antimony	< 10.0	U	ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Barium	< 100	U	ug/L	50.0	10	11/23/2010	SV	1011104
200.8	Beryllium	3.70		ug/L	1.00	10	11/23/2010	SV	1011104
200.8	Cadmium	2.02		ug/L	1.00	10	11/23/2010	SV	1011104
200.8	Chromium	< 10.0	U	ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Cobalt	136		ug/L	1.00	10	11/23/2010	SV	1011104
200.8	Copper	< 10.0	U	ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Lead	1.12	J	ug/L	1.00	10	11/23/2010	SV	1011104
200.8	Molybdenum	< 4.00	J	ug/L	1.00	10	11/23/2010	SV	1011104
200.8	Nickel	47.8		ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Selenium	< 10.0	U	ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Silver	< 5.00	U	ug/L	1.00	10	11/23/2010	SV	1011104
200.8	Thallium	< 10.0	U	ug/L	5.00	10	11/23/2010	SV	1011104
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	11/23/2010	SV	1011104
2340B	Hardness	1210		mg/L	2	1	11/23/2010	SW	1011103

"J" Qualifier indicates an estimated value

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: CC19	Date / Time Sampled: 10/27/10 10:05	Workorder: C101101
EPA Tag No.: No Tag Prefix-39	Matrix: Mine Discharge	Lab Number: C101101-18 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	5520		ug/L	20.0	1	11/18/2010	SW	1011092
200.7	Calcium	457000		ug/L	100	1	11/18/2010	SW	1011092
200.7	Iron	144000		ug/L	100	1	11/18/2010	SW	1011092
200.7	Magnesium	31600		ug/L	100	1	11/18/2010	SW	1011092
200.7	Manganese	44000		ug/L	2.00	1	11/18/2010	SW	1011092
200.7	Potassium	1790		ug/L	250	1	11/18/2010	SW	1011092
200.7	Sodium	9610		ug/L	250	1	11/18/2010	SW	1011092
200.7	Zinc	19100		ug/L	10.0	1	11/18/2010	SW	1011092
200.8	Antimony	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Barium	< 100	U	ug/L	50.0	10	11/18/2010	SV	1011092
200.8	Beryllium	4.18		ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Cadmium	1.97	J	ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Chromium	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Cobalt	133		ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Copper	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Lead	3.70		ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Molybdenum	< 2.00	U	ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Nickel	46.3		ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Selenium	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Silver	< 5.00	U	ug/L	1.00	10	11/18/2010	SV	1011092
200.8	Thallium	< 10.0	U	ug/L	5.00	10	11/18/2010	SV	1011092
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	11/18/2010	SV	1011092

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: CC48

Date / Time Sampled: 10/26/10 00:00

Workorder: C101101

EPA Tag No.: No Tag Prefix-16

Matrix: Surface Water

Lab Number: C101101-19 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	7890		ug/L	20.0	1	11/22/2010	SW	1011093
200.7	Calcium	177000		ug/L	100	1	11/22/2010	SW	1011093
200.7	Iron	12000		ug/L	100	1	11/22/2010	SW	1011093
200.7	Magnesium	10900		ug/L	100	1	11/22/2010	SW	1011093
200.7	Manganese	4580		ug/L	2.00	1	11/22/2010	SW	1011093
200.7	Potassium	1840		ug/L	250	1	11/22/2010	SW	1011093
200.7	Sodium	4550		ug/L	250	1	11/22/2010	SW	1011093
200.7	Zinc	2340		ug/L	10.0	1	11/22/2010	SW	1011093
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011093
200.8	Beryllium	1.14		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Cadmium	6.57		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Cobalt	22.3		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Copper	147		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Lead	17.4		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Molybdenum	< 2.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Nickel	11.0		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011093

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: CC48 DUP Date / Time Sampled: 10/26/10 00:00
 EPA Tag No.: No. Tag Prefix-33 Matrix: Surface Water Workorder: C101101
 Lab Number: C101101-20 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	7870		ug/L	20.0	1	11/18/2010	SW	1011092
200.7	Calcium	175000		ug/L	100	1	11/18/2010	SW	1011092
200.7	Iron	11700		ug/L	100	1	11/18/2010	SW	1011092
200.7	Magnesium	10900		ug/L	100	1	11/18/2010	SW	1011092
200.7	Manganese	4810		ug/L	2.00	1	11/18/2010	SW	1011092
200.7	Potassium	1800		ug/L	250	1	11/18/2010	SW	1011092
200.7	Sodium	4580		ug/L	250	1	11/18/2010	SW	1011092
200.7	Zinc	2500		ug/L	10.0	1	11/18/2010	SW	1011092
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/18/2010	SV	1011092
200.8	Beryllium	1.30		ug/L	0.500 <i>5+</i>	5	11/18/2010	SV	1011092
200.8	Cadmium	6.45		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Cobalt	21.6		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Copper	135		ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Lead	19.0		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Nickel	9.52		ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/18/2010	SV	1011092

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: CCOPP-12	Date / Time Sampled: 10/28/10 10:59	Workorder: C101101
EPA Tag No.: No Tag Prefix-47	Matrix: Surface Water	Lab Number: C101101-21 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	2480		ug/L	20.0	1	11/18/2010	SW	1011092
200.7	Calcium	87800		ug/L	100	1	11/18/2010	SW	1011092
200.7	Iron	210	J	ug/L	100	1	11/18/2010	SW	1011092
200.7	Magnesium	6010		ug/L	100	1	11/18/2010	SW	1011092
200.7	Manganese	3000		ug/L	2.00	1	11/18/2010	SW	1011092
200.7	Potassium	532	J	ug/L	250	1	11/18/2010	SW	1011092
200.7	Sodium	2890		ug/L	250	1	11/18/2010	SW	1011092
200.7	Zinc	4640		ug/L	10.0	1	11/18/2010	SW	1011092
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/18/2010	SV	1011092
200.8	Beryllium	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Cadmium	13.7		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Cobalt	1.83		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Copper	140		ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Lead	7.42		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Nickel	3.23	J	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/18/2010	SV	1011092

Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #:

DG-216**Metals (Total Recov) by EPA 200/7000 Series Methods**

Station ID: M34	Date / Time Sampled: 10/25/10 00:00	Workorder: C101101
EPA Tag No.: No Tag Prefix-14	Matrix: Surface Water	Lab Number: C101101-22 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	381		ug/L	20.0	1	11/18/2010	SW	1011092
200.7	Calcium	57500		ug/L	100	1	11/18/2010	SW	1011092
200.7	Iron	2800		ug/L	100	1	11/18/2010	SW	1011092
200.7	Magnesium	4860		ug/L	100	1	11/18/2010	SW	1011092
200.7	Manganese	327		ug/L	2.00	1	11/18/2010	SW	1011092
200.7	Potassium	629	J	ug/L	250	1	11/18/2010	SW	1011092
200.7	Sodium	3300		ug/L	250	1	11/18/2010	SW	1011092
200.7	Zinc	185		ug/L	10.0	1	11/18/2010	SW	1011092
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/18/2010	SV	1011092
200.8	Beryllium	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Cadmium	0.926	J	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Cobalt	3.75		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Lead	1.23		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/18/2010	SV	1011092

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #:

DG-216**Metals (Total Recov) by EPA 200/7000 Series Methods**

Station ID: UASW001	Date/ Time Sampled: 10/26/10 00:00	Workorder: C101101
EPA Tag No.: No Tag Prefix-1	Matrix: Surface Water	Lab Number: C101101-23 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	7330		ug/L	20.0	1	11/18/2010	SW	1011092
200.7	Calcium	169000		ug/L	100	1	11/18/2010	SW	1011092
200.7	Iron	10800		ug/L	100	1	11/18/2010	SW	1011092
200.7	Magnesium	10400		ug/L	100	1	11/18/2010	SW	1011092
200.7	Manganese	4760		ug/L	2.00	1	11/18/2010	SW	1011092
200.7	Potassium	1700		ug/L	250	1	11/18/2010	SW	1011092
200.7	Sodium	4450		ug/L	250	1	11/18/2010	SW	1011092
200.7	Zinc	2410		ug/L	10.0	1	11/18/2010	SW	1011092
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/18/2010	SV	1011092
200.8	Beryllium	1.17		ug/L	0.500 <i>FT</i>	5	11/18/2010	SV	1011092
200.8	Cadmium	6.19		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Cobalt	20.4		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Copper	121		ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Lead	17.8		ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Nickel	8.46		ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/18/2010	SV	1011092
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/18/2010	SV	1011092
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/18/2010	SV	1011092

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TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW002 Date / Time Sampled: 10/26/10 00:00
EPA Tag No.: No Tag Prefix-2 Matrix: Surface Water Workorder: C101101
Lab Number: C101101-24 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	7810		ug/L	20.0	1	11/22/2010	SW	1011093
200.7	Calcium	175000		ug/L	100	1	11/22/2010	SW	1011093
200.7	Iron	11500		ug/L	100	1	11/22/2010	SW	1011093
200.7	Magnesium	10900		ug/L	100	1	11/22/2010	SW	1011093
200.7	Manganese	4650		ug/L	2.00	1	11/22/2010	SW	1011093
200.7	Potassium	1790		ug/L	250	1	11/22/2010	SW	1011093
200.7	Sodium	4540		ug/L	250	1	11/22/2010	SW	1011093
200.7	Zinc	2370		ug/L	10.0	1	11/22/2010	SW	1011093
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011093
200.8	Beryllium	0.826	J	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Cadmium	6.55		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Cobalt	23.7		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Copper	148		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Lead	17.8		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Molybdenum	1.04	J	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Nickel	10.6		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Silver	0.953	J	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Thallium	5.61		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011093

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TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW004	Date / Time Sampled: 10/27/10 00:00	Workorder: C101101
EPA Tag No.: No Tag Prefix-4	Matrix: Surface Water	Lab Number: C101101-25 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	5130		ug/L	20.0	1	11/22/2010	SW	1011093
200.7	Calcium	202000		ug/L	100	1	11/22/2010	SW	1011093
200.7	Iron	16200		ug/L	100	1	11/22/2010	SW	1011093
200.7	Magnesium	13100		ug/L	100	1	11/22/2010	SW	1011093
200.7	Manganese	10100		ug/L	2.00	1	11/22/2010	SW	1011093
200.7	Potassium	933	J	ug/L	250	1	11/22/2010	SW	1011093
200.7	Sodium	4480		ug/L	250	1	11/22/2010	SW	1011093
200.7	Zinc	5510		ug/L	10.0	1	11/22/2010	SW	1011093
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011093
200.8	Beryllium	2.28		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Cadmium	16.1		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Cobalt	33.0		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Copper	398		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Lead	25.0		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Nickel	14.7		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011093

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TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	UASW006	Date / Time Sampled:	10/27/10 00:00	Workorder:	C101101
EPA Tag No.:	No Tag Prefix-6	Matrix:	Surface Water	Lab Number:	C101101-26 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	9160		ug/L	20.0	1	11/22/2010	SW	1011093
200.7	Calcium	258000		ug/L	100	1	11/22/2010	SW	1011093
200.7	Iron	32500		ug/L	100	1	11/22/2010	SW	1011093
200.7	Magnesium	18200		ug/L	100	1	11/22/2010	SW	1011093
200.7	Manganese	18500		ug/L	2.00	1	11/22/2010	SW	1011093
200.7	Potassium	987	J	ug/L	250	1	11/22/2010	SW	1011093
200.7	Sodium	5630		ug/L	250	1	11/22/2010	SW	1011093
200.7	Zinc	10700		ug/L	10.0	1	11/22/2010	SW	1011093
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011093
200.8	Beryllium	3.61		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Cadmium	30.3		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Cobalt	59.4		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Copper	796		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Lead	44.8		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Nickel	24.8		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011093

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TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	UASW008	Date / Time Sampled:	10/27/10 00:00	Workorder:	C101101
EPA Tag No.:	No Tag Prefix-8	Matrix:	Surface Water	Lab Number:	C101101-27 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	7940		ug/L	20.0	1	11/22/2010	SW	1011093
200.7	Calcium	238000		ug/L	100	1	11/22/2010	SW	1011093
200.7	Iron	30000		ug/L	100	1	11/22/2010	SW	1011093
200.7	Magnesium	16100		ug/L	100	1	11/22/2010	SW	1011093
200.7	Manganese	14800		ug/L	2.00	1	11/22/2010	SW	1011093
200.7	Potassium	926	J	ug/L	250	1	11/22/2010	SW	1011093
200.7	Sodium	5100		ug/L	250	1	11/22/2010	SW	1011093
200.7	Zinc	9230		ug/L	10.0	1	11/22/2010	SW	1011093
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011093
200.8	Beryllium	2.88		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Cadmium	28.7		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Cobalt	46.6		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Copper	884		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Lead	19.3		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Nickel	20.8		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011093

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Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW009	Date / Time Sampled: 10/27/10 00:00	Workorder: C101101
EPA Tag No.: No Tag Prefix-9	Matrix: Surface Water	Lab Number: C101101-28 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	7030		ug/L	20.0	1	11/22/2010	SW	1011093
200.7	Calcium	230000		ug/L	100	1	11/22/2010	SW	1011093
200.7	Iron	31400		ug/L	100	1	11/22/2010	SW	1011093
200.7	Magnesium	15600		ug/L	100	1	11/22/2010	SW	1011093
200.7	Manganese	14800		ug/L	2.00	1	11/22/2010	SW	1011093
200.7	Potassium	899	J	ug/L	250	1	11/22/2010	SW	1011093
200.7	Sodium	4820		ug/L	250	1	11/22/2010	SW	1011093
200.7	Zinc	9350		ug/L	10.0	1	11/22/2010	SW	1011093
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011093
200.8	Beryllium	3.57		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Cadmium	29.1		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Cobalt	49.2		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Copper	909		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Lead	14.6		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Nickel	328		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011093

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TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	UASW010	Date/Time Sampled:	10/27/10 00:00	Workorder:	C101101
EPA Tag No.:	No Tag Prefix-10	Matrix:	Surface Water	Lab Number:	C101101-29 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	23500		ug/L	20.0	1	11/22/2010	SW	1011093
200.7	Calcium	348000		ug/L	100	1	11/22/2010	SW	1011093
200.7	Iron	52900		ug/L	100	1	11/22/2010	SW	1011093
200.7	Magnesium	24800		ug/L	100	1	11/22/2010	SW	1011093
200.7	Manganese	23700		ug/L	2.00	1	11/22/2010	SW	1011093
200.7	Potassium	1430		ug/L	250	1	11/22/2010	SW	1011093
200.7	Sodium	5140		ug/L	250	1	11/22/2010	SW	1011093
200.7	Zinc	16200		ug/L	10.0	1	11/22/2010	SW	1011093
200.8	Antimony	< 10.0	U	ug/L	5.00	10	11/22/2010	SV	1011093
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	11/22/2010	SV	1011093
200.8	Barium	< 100	U	ug/L	50.0	10	11/22/2010	SV	1011093
200.8	Beryllium	6.34		ug/L	1.00	10	11/22/2010	SV	1011093
200.8	Cadmium	63.7		ug/L	1.00	10	11/22/2010	SV	1011093
200.8	Chromium	< 10.0	U	ug/L	5.00	10	11/22/2010	SV	1011093
200.8	Cobalt	83.1		ug/L	1.00	10	11/22/2010	SV	1011093
200.8	Copper	4230		ug/L	5.00	10	11/22/2010	SV	1011093
200.8	Lead	5.93		ug/L	1.00	10	11/22/2010	SV	1011093
200.8	Molybdenum	< 2.00	U	ug/L	1.00	10	11/22/2010	SV	1011093
200.8	Nickel	39.3		ug/L	5.00	10	11/22/2010	SV	1011093
200.8	Selenium	< 10.0	U	ug/L	5.00	10	11/22/2010	SV	1011093
200.8	Silver	< 5.00	U	ug/L	1.00	10	11/22/2010	SV	1011093
200.8	Thallium	< 10.0	U	ug/L	5.00	10	11/22/2010	SV	1011093
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	11/22/2010	SV	1011093

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TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW011	Date / Time Sampled: 10/28/10 14:10	Workorder: C101101
EPA Tag No.: No Tag Prefix-43	Matrix: Surface Water	Lab Number: C101101-30 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	18100		ug/L	20.0	1	11/22/2010	SW	1011093
200.7	Calcium	388000		ug/L	100	1	11/22/2010	SW	1011093
200.7	Iron	66700		ug/L	100	1	11/22/2010	SW	1011093
200.7	Magnesium	22300		ug/L	100	1	11/22/2010	SW	1011093
200.7	Manganese	26000		ug/L	2.00	1	11/22/2010	SW	1011093
200.7	Potassium	1790		ug/L	250	1	11/22/2010	SW	1011093
200.7	Sodium	5240		ug/L	250	1	11/22/2010	SW	1011093
200.7	Zinc	17100		ug/L	10.0	1	11/22/2010	SW	1011093
200.8	Antimony	< 10.0	U	ug/L	5.00	10	11/22/2010	SV	1011093
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	11/22/2010	SV	1011093
200.8	Barium	< 100	U	ug/L	50.0	10	11/22/2010	SV	1011093
200.8	Beryllium	7.06		ug/L	1.00	10	11/22/2010	SV	1011093
200.8	Cadmium	53.3		ug/L	1.00	10	11/22/2010	SV	1011093
200.8	Chromium	< 10.0	U	ug/L	5.00	10	11/22/2010	SV	1011093
200.8	Cobalt	81.4		ug/L	1.00	10	11/22/2010	SV	1011093
200.8	Copper	4580		ug/L	5.00	10	11/22/2010	SV	1011093
200.8	Lead	5.66		ug/L	1.00	10	11/22/2010	SV	1011093
200.8	Molybdenum	< 2.00	U	ug/L	1.00	10	11/22/2010	SV	1011093
200.8	Nickel	35.8		ug/L	5.00	10	11/22/2010	SV	1011093
200.8	Selenium	< 10.0	U	ug/L	5.00	10	11/22/2010	SV	1011093
200.8	Silver	< 5.00	U	ug/L	1.00	10	11/22/2010	SV	1011093
200.8	Thallium	< 10.0	U	ug/L	5.00	10	11/22/2010	SV	1011093
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	11/22/2010	SV	1011093

Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW012
EPA Tag No.: No Tag Prefix-44Date / Time Sampled: 10/28/10 14:25
Matrix: Surface WaterWorkorder: C101101
Lab Number: C101101-31 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	3820		ug/L	20.0	1	11/22/2010	SW	1011093
200.7	Calcium	52500		ug/L	100	1	11/22/2010	SW	1011093
200.7	Iron	< 250	U	ug/L	100	1	11/22/2010	SW	1011093
200.7	Magnesium	7230		ug/L	100	1	11/22/2010	SW	1011093
200.7	Manganese	742		ug/L	2.00	1	11/22/2010	SW	1011093
200.7	Potassium	545	J	ug/L	250	1	11/22/2010	SW	1011093
200.7	Sodium	2040		ug/L	250	1	11/22/2010	SW	1011093
200.7	Zinc	924		ug/L	10.0	1	11/22/2010	SW	1011093
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011093
200.8	Beryllium	0.595	J	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Cadmium	4.69		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Chromium	2.56	J	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Cobalt	7.94		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Copper	291		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Lead	4.50		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Nickel	5.44		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011093

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW013	Date / Time Sampled: 10/27/10 00:00	Workorder: C101101
EPA Tag No.: No Tag Prefix-11	Matrix: Surface Water	Lab Number: C101101-32 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	3550		ug/L	20.0	1	11/22/2010	SW	1011093
200.7	Calcium	210000		ug/L	100	1	11/22/2010	SW	1011093
200.7	Iron	27700		ug/L	100	1	11/22/2010	SW	1011093
200.7	Magnesium	14000		ug/L	100	1	11/22/2010	SW	1011093
200.7	Manganese	12800		ug/L	2.00	1	11/22/2010	SW	1011093
200.7	Potassium	874	J	ug/L	250	1	11/22/2010	SW	1011093
200.7	Sodium	4980		ug/L	250	1	11/22/2010	SW	1011093
200.7	Zinc	7890		ug/L	10.0	1	11/22/2010	SW	1011093
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011093
200.8	Beryllium	2.73		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Cadmium	22.0		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Cobalt	36.3		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Copper	128		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Lead	13.3		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Nickel	16.3		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011093

Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW014	Date / Time Sampled: 10/28/10 09:45	Workorder: C101101
EPA Tag No.: No Tag Prefix-45	Matrix: Surface Water	Lab Number: C101101-33 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	4980		ug/L	20.0	1	11/22/2010	SW	1011093
200.7	Calcium	231000		ug/L	100	1	11/22/2010	SW	1011093
200.7	Iron	30600		ug/L	100	1	11/22/2010	SW	1011093
200.7	Magnesium	15700		ug/L	100	1	11/22/2010	SW	1011093
200.7	Manganese	14900		ug/L	2.00	1	11/22/2010	SW	1011093
200.7	Potassium	920	J	ug/L	250	1	11/22/2010	SW	1011093
200.7	Sodium	5430		ug/L	250	1	11/22/2010	SW	1011093
200.7	Zinc	8770		ug/L	10.0	1	11/22/2010	SW	1011093
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011093
200.8	Beryllium	3.03		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Cadmium	25.8		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Cobalt	46.0		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Copper	121		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Lead	16.1		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Nickel	20.2		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011093

Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #:

DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW017	Date / Time Sampled: 10/29/10 11:55	Workorder: C101101
EPA Tag No.: No Tag Prefix-48	Matrix: Surface Water	Lab Number: C101101-34 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	2570		ug/L	20.0	1	11/22/2010	SW	1011093
200.7	Calcium	81400		ug/L	100	1	11/22/2010	SW	1011093
200.7	Iron	186	J	ug/L	100	1	11/22/2010	SW	1011093
200.7	Magnesium	6280		ug/L	100	1	11/22/2010	SW	1011093
200.7	Manganese	3370		ug/L	2.00	1	11/22/2010	SW	1011093
200.7	Potassium	568	J	ug/L	250	1	11/22/2010	SW	1011093
200.7	Sodium	2610		ug/L	250	1	11/22/2010	SW	1011093
200.7	Zinc	4910		ug/L	10.0	1	11/22/2010	SW	1011093
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011093
200.8	Beryllium	1.08		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Cadmium	15.8		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Cobalt	2.34		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Copper	201		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Lead	12.6		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Nickel	4.23	J	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011093

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW018

EPA Tag No.: No Tag Prefix-49

Date / Time Sampled: 10/29/10 13:30

Matrix: Surface Water

Workorder: C101101

Lab Number: C101101-35 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	2830		ug/L	20.0	1	11/22/2010	SW	1011093
200.7	Calcium	71600		ug/L	100	1	11/22/2010	SW	1011093
200.7	Iron	413		ug/L	100	1	11/22/2010	SW	1011093
200.7	Magnesium	6880		ug/L	100	1	11/22/2010	SW	1011093
200.7	Manganese	4040		ug/L	2.00	1	11/22/2010	SW	1011093
200.7	Potassium	593	J	ug/L	250	1	11/22/2010	SW	1011093
200.7	Sodium	2190		ug/L	250	1	11/22/2010	SW	1011093
200.7	Zinc	5950		ug/L	10.0	1	11/22/2010	SW	1011093
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011093
200.8	Beryllium	0.760	J	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Cadmium	19.2		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Cobalt	3.02		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Copper	240		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Lead	11.9		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Nickel	5.71		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011093

Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW019
 EPA Tag No.: No Tag Prefix-50

Date / Time Sampled: 10/29/10 12:49
 Matrix: Surface Water

Workorder: C101101
 Lab Number: C101101-36 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	10100		ug/L	20.0	1	11/22/2010	SW	1011094
200.7	Calcium	174000		ug/L	100	1	11/22/2010	SW	1011094
200.7	Iron	4460		ug/L	100	1	11/22/2010	SW	1011094
200.7	Magnesium	13600		ug/L	100	1	11/22/2010	SW	1011094
200.7	Manganese	21900		ug/L	2.00	1	11/22/2010	SW	1011094
200.7	Potassium	1420		ug/L	250	1	11/22/2010	SW	1011094
200.7	Sodium	5520		ug/L	250	1	11/22/2010	SW	1011094
200.7	Zinc	27600		ug/L	10.0	1	11/22/2010	SW	1011094
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011094
200.8	Beryllium	3.80		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Cadmium	72.8		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Cobalt	22.6		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Copper	820		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Lead	75.6		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Nickel	13.6		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011094

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #:

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Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW019-DUP

Date / Time Sampled: 10/29/10 12:49

Workorder: C101101

EPA Tag No.: No Tag Prefix-57

Matrix: Surface Water

Lab Number: C101101-37-A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	10200		ug/L	20.0	1	11/22/2010	SW	1011093
200.7	Calcium	174000		ug/L	100	1	11/22/2010	SW	1011093
200.7	Iron	4570		ug/L	100	1	11/22/2010	SW	1011093
200.7	Magnesium	13700		ug/L	100	1	11/22/2010	SW	1011093
200.7	Manganese	22000		ug/L	2.00	1	11/22/2010	SW	1011093
200.7	Potassium	1440		ug/L	250	1	11/22/2010	SW	1011093
200.7	Sodium	5560		ug/L	250	1	11/22/2010	SW	1011093
200.7	Zinc	27700		ug/L	10.0	1	11/22/2010	SW	1011093
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011093
200.8	Beryllium	3.96		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Cadmium	74.2		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Cobalt	22.6		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Copper	848		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Lead	76.6		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Nickel	13.7		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011093

Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #:

DG-216**Metals (Total Recov) by EPA 200/7000 Series Methods**

Station ID: UASW020	Date / Time Sampled: 10/29/10 13:50	Workorder: C101101
EPA Tag No.: No Tag Prefix-51	Matrix: Surface Water	Lab Number: C101101-38 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	996		ug/L	20.0	1	11/22/2010	SW	1011093
200.7	Calcium	45100		ug/L	100	1	11/22/2010	SW	1011093
200.7	Iron	< 250	U	ug/L	100	1	11/22/2010	SW	1011093
200.7	Magnesium	5520		ug/L	100	1	11/22/2010	SW	1011093
200.7	Manganese	306		ug/L	2.00	1	11/22/2010	SW	1011093
200.7	Potassium	462	J	ug/L	250	1	11/22/2010	SW	1011093
200.7	Sodium	1150		ug/L	250	1	11/22/2010	SW	1011093
200.7	Zinc	1920		ug/L	10.0	1	11/22/2010	SW	1011093
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011093
200.8	Beryllium	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Cadmium	8.88		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Copper	91.1		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Lead	4.01		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Nickel	4.42	J	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011093

Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	UASW021	Date / Time Sampled:	10/31/10 11:10	Workorder:	C101101
EPA Tag No.:	No Tag Prefix-58	Matrix:	Surface Water	Lab Number:	C101101-39-A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	1520		ug/L	20.0	1	11/22/2010	SW	1011093
200.7	Calcium	55900		ug/L	100	1	11/22/2010	SW	1011093
200.7	Iron	< 250	U	ug/L	100	1	11/22/2010	SW	1011093
200.7	Magnesium	7150		ug/L	100	1	11/22/2010	SW	1011093
200.7	Manganese	550		ug/L	2.00	1	11/22/2010	SW	1011093
200.7	Potassium	517	J	ug/L	250	1	11/22/2010	SW	1011093
200.7	Sodium	1260		ug/L	250	1	11/22/2010	SW	1011093
200.7	Zinc	2550		ug/L	10.0	1	11/22/2010	SW	1011093
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Barium	26.3	J	ug/L	25.0	5	11/22/2010	SV	1011093
200.8	Beryllium	0.649	J	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Cadmium	12.0		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Copper	105		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Lead	2.62		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Nickel	6.43		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011093

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #:

DG-216**Metals (Total Recov) by EPA 200/7000 Series Methods**

Station ID: UASW032	Date / Time Sampled: 10/26/10 00:00	Workorder: C101101
EPA Tag No.: No Tag Prefix-13	Matrix: Surface Water	Lab Number: C101101-40 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	275		ug/L	20.0	1	11/22/2010	SW	1011093
200.7	Calcium	76900		ug/L	100	1	11/22/2010	SW	1011093
200.7	Iron	2630		ug/L	100	1	11/22/2010	SW	1011093
200.7	Magnesium	5720		ug/L	100	1	11/22/2010	SW	1011093
200.7	Manganese	1270		ug/L	2.00	1	11/22/2010	SW	1011093
200.7	Potassium	856	J	ug/L	250	1	11/22/2010	SW	1011093
200.7	Sodium	3570		ug/L	250	1	11/22/2010	SW	1011093
200.7	Zinc	558		ug/L	10.0	1	11/22/2010	SW	1011093
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011093
200.8	Beryllium	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Cadmium	1.76		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Cobalt	6.34		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Copper	13.9		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011093

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Project Name: Upper Animas - Water - Oct 2010

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TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	UASW034	Date / Time Sampled:	10/26/10 00:00	Workorder:	C101101
EPA Tag No.:	No Tag Prefix-15	Matrix:	Surface Water	Lab Number:	C101101-41 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	530		ug/L	20.0	1	11/22/2010	SW	1011093
200.7	Calcium	91000		ug/L	100	1	11/22/2010	SW	1011093
200.7	Iron	1980		ug/L	100	1	11/22/2010	SW	1011093
200.7	Magnesium	5630		ug/L	100	1	11/22/2010	SW	1011093
200.7	Manganese	2560		ug/L	2.00	1	11/22/2010	SW	1011093
200.7	Potassium	1010		ug/L	250	1	11/22/2010	SW	1011093
200.7	Sodium	3150		ug/L	250	1	11/22/2010	SW	1011093
200.7	Zinc	1030		ug/L	10.0	1	11/22/2010	SW	1011093
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011093
200.8	Beryllium	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Cadmium	2.96		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Cobalt	7.33		ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Copper	26.1		ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Molybdenum	0.670	J	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Nickel	2.96	J	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011093
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011093
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011093

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TDF #:

DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW036
EPA Tag No.: No Tag Prefix-17Date / Time Sampled: 10/26/10 00:00
Matrix: Surface WaterWorkorder: C101101
Lab Number: C101101-42 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	7800		ug/L	20.0	1	11/22/2010	SW	1011094
200.7	Calcium	171000		ug/L	100	1	11/22/2010	SW	1011094
200.7	Iron	12200		ug/L	100	1	11/22/2010	SW	1011094
200.7	Magnesium	10600		ug/L	100	1	11/22/2010	SW	1011094
200.7	Manganese	4390		ug/L	2.00	1	11/22/2010	SW	1011094
200.7	Potassium	1780		ug/L	250	1	11/22/2010	SW	1011094
200.7	Sodium	4460		ug/L	250	1	11/22/2010	SW	1011094
200.7	Zinc	2260		ug/L	10.0	1	11/22/2010	SW	1011094
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011094
200.8	Beryllium	0.910	J	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Cadmium	5.87		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Cobalt	23.5		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Copper	146		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Lead	18.9		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Molybdenum	0.900	J	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Nickel	11.7		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Silver	0.891	J	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Thallium	6.35		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011094

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW037	Date / Time Sampled: 10/26/10 00:00	Workorder: C101101
EPA Tag No.: No Tag Prefix-18	Matrix: Surface Water	Lab Number: C101101-43 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	7580		ug/L	20.0	1	11/22/2010	SW	1011094
200.7	Calcium	172000		ug/L	100	1	11/22/2010	SW	1011094
200.7	Iron	14800		ug/L	100	1	11/22/2010	SW	1011094
200.7	Magnesium	10900		ug/L	100	1	11/22/2010	SW	1011094
200.7	Manganese	5280		ug/L	2.00	1	11/22/2010	SW	1011094
200.7	Potassium	1580		ug/L	250	1	11/22/2010	SW	1011094
200.7	Sodium	4310		ug/L	250	1	11/22/2010	SW	1011094
200.7	Zinc	2800		ug/L	10.0	1	11/22/2010	SW	1011094
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011094
200.8	Beryllium	0.986	J	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Cadmium	7.38		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Cobalt	24.7		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Copper	175		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Lead	22.4		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Molybdenum	0.557	J	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Nickel	11.5		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Thallium	4.02	J	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011094

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TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW039	Date / Time Sampled: 10/26/10 00:00	Workorder: C101101
EPA Tag No.: No Tag Prefix-19	Matrix: Surface Water	Lab Number: C101101-44 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	8320		ug/L	20.0	1	11/22/2010	SW	1011094
200.7	Calcium	165000		ug/L	100	1	11/22/2010	SW	1011094
200.7	Iron	17600		ug/L	100	1	11/22/2010	SW	1011094
200.7	Magnesium	11300		ug/L	100	1	11/22/2010	SW	1011094
200.7	Manganese	5610		ug/L	2.00	1	11/22/2010	SW	1011094
200.7	Potassium	1680		ug/L	250	1	11/22/2010	SW	1011094
200.7	Sodium	4090		ug/L	250	1	11/22/2010	SW	1011094
200.7	Zinc	3000		ug/L	10.0	1	11/22/2010	SW	1011094
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011094
200.8	Beryllium	0.925	J	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Cadmium	7.47		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Cobalt	27.3		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Copper	184		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Lead	25.7		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Nickel	12.7		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Thallium	2.77	J	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011094

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	UASW040	Date / Time Sampled:	10/26/10 00:00	Workorder:	C101101
EPA Tag No.:	No Tag Prefix-20	Matrix:	Surface Water	Lab Number:	C101101-45 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	17100		ug/L	20.0	1	11/22/2010	SW	1011094
200.7	Calcium	57800		ug/L	100	1	11/22/2010	SW	1011094
200.7	Iron	32700		ug/L	100	1	11/22/2010	SW	1011094
200.7	Magnesium	12600		ug/L	100	1	11/22/2010	SW	1011094
200.7	Manganese	5010		ug/L	2.00	1	11/22/2010	SW	1011094
200.7	Potassium	1300		ug/L	250	1	11/22/2010	SW	1011094
200.7	Sodium	2180		ug/L	250	1	11/22/2010	SW	1011094
200.7	Zinc	1070		ug/L	10.0	1	11/22/2010	SW	1011094
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011094
200.8	Beryllium	1.72		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Cadmium	4.41		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Cobalt	59.1		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Copper	229		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Lead	95.6		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Nickel	33.2		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011094

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TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW041 Date / Time Sampled: 10/26/10 00:00
EPA Tag No.: No Tag Prefix-21 Matrix: Surface Water Workorder: C101101
Lab Number: C101101-46 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	8090		ug/L	20.0	1	11/22/2010	SW	1011094
200.7	Calcium	171000		ug/L	100	1	11/22/2010	SW	1011094
200.7	Iron	17200		ug/L	100	1	11/22/2010	SW	1011094
200.7	Magnesium	11300		ug/L	100	1	11/22/2010	SW	1011094
200.7	Manganese	5710		ug/L	2.00	1	11/22/2010	SW	1011094
200.7	Potassium	1680		ug/L	250	1	11/22/2010	SW	1011094
200.7	Sodium	4150		ug/L	250	1	11/22/2010	SW	1011094
200.7	Zinc	3090		ug/L	10.0	1	11/22/2010	SW	1011094
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011094
200.8	Beryllium	1.58		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Cadmium	8.71		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Cobalt	26.7		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Copper	184		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Lead	24.5		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Nickel	12.9		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011094

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TDF #:

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Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW042	Date / Time Sampled: 10/26/10 00:00	Workorder: C101101
EPA Tag No.: No Tag Prefix-22	Matrix: Surface Water	Lab Number: C101101-47 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	7870		ug/L	20.0	1	11/22/2010	SW	1011094
200.7	Calcium	175000		ug/L	100	1	11/22/2010	SW	1011094
200.7	Iron	17100		ug/L	100	1	11/22/2010	SW	1011094
200.7	Magnesium	11600		ug/L	100	1	11/22/2010	SW	1011094
200.7	Manganese	5900		ug/L	2.00	1	11/22/2010	SW	1011094
200.7	Potassium	1650		ug/L	250	1	11/22/2010	SW	1011094
200.7	Sodium	4280		ug/L	250	1	11/22/2010	SW	1011094
200.7	Zinc	3160		ug/L	10.0	1	11/22/2010	SW	1011094
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011094
200.8	Beryllium	1.36		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Cadmium	8.14		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Cobalt	25.6		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Copper	191		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Lead	24.1		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Nickel	12.2		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011094

Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW043 Date / Time Sampled: 10/26/10 10:00:00
 EPA Tag No.: No Tag Prefix-23 Matrix: Surface Water Workorder: C101101
 Lab Number: C101101-48 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	225		ug/L	20.0	1	11/22/2010	SW	1011094
200.7	Calcium	304000		ug/L	100	1	11/22/2010	SW	1011094
200.7	Iron	19300		ug/L	100	1	11/22/2010	SW	1011094
200.7	Magnesium	18900		ug/L	100	1	11/22/2010	SW	1011094
200.7	Manganese	8020		ug/L	2.00	1	11/22/2010	SW	1011094
200.7	Potassium	2450		ug/L	250	1	11/22/2010	SW	1011094
200.7	Sodium	9620		ug/L	250	1	11/22/2010	SW	1011094
200.7	Zinc	2450		ug/L	10.0	1	11/22/2010	SW	1011094
200.8	Antimony	< 10.0	U	ug/L	5.00	10	11/22/2010	SV	1011094
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	11/22/2010	SV	1011094
200.8	Barium	< 100	U	ug/L	50.0	10	11/22/2010	SV	1011094
200.8	Beryllium	1.31	J	ug/L	1.00	10	11/22/2010	SV	1011094
200.8	Cadmium	2.10		ug/L	1.00	10	11/22/2010	SV	1011094
200.8	Chromium	< 10.0	U	ug/L	5.00	10	11/22/2010	SV	1011094
200.8	Cobalt	34.9		ug/L	1.00	10	11/22/2010	SV	1011094
200.8	Copper	< 10.0	U	ug/L	5.00	10	11/22/2010	SV	1011094
200.8	Lead	< 2.00	U	ug/L	1.00	10	11/22/2010	SV	1011094
200.8	Molybdenum	< 2.00	U	ug/L	1.00	10	11/22/2010	SV	1011094
200.8	Nickel	< 10.0	U	ug/L	5.00	10	11/22/2010	SV	1011094
200.8	Selenium	< 10.0	U	ug/L	5.00	10	11/22/2010	SV	1011094
200.8	Silver	< 5.00	U	ug/L	1.00	10	11/22/2010	SV	1011094
200.8	Thallium	< 10.0	U	ug/L	5.00	10	11/22/2010	SV	1011094
200.8	Vanadium	< 20.0	U	ug/L	10.0	10	11/22/2010	SV	1011094

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID:	UASW044	Date / Time Sampled:	10/26/10 00:00	Workorder:	C101101
EPA Tag No.:	No Tag Prefix-24	Matrix:	Surface Water	Lab Number:	C101101-49 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	8150		ug/L	20.0	1	11/22/2010	SW	1011094
200.7	Calcium	167000		ug/L	100	1	11/22/2010	SW	1011094
200.7	Iron	18200		ug/L	100	1	11/22/2010	SW	1011094
200.7	Magnesium	11200		ug/L	100	1	11/22/2010	SW	1011094
200.7	Manganese	5750		ug/L	2.00	1	11/22/2010	SW	1011094
200.7	Potassium	1650		ug/L	250	1	11/22/2010	SW	1011094
200.7	Sodium	4030		ug/L	250	1	11/22/2010	SW	1011094
200.7	Zinc	3210		ug/L	10.0	1	11/22/2010	SW	1011094
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011094
200.8	Beryllium	1.32		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Cadmium	9.09		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Cobalt	28.9		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Copper	212		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Lead	26.0		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Nickel	14.9		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011094

Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW045	Date / Time Sampled: 10/26/10 00:00	Workorder: C101101
EPA Tag No.: No Tag Prefix-25	Matrix: Surface Water	Lab Number: C101101-50 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	4280		ug/L	20.0	1	11/22/2010	SW	1011094
200.7	Calcium	52700		ug/L	100	1	11/22/2010	SW	1011094
200.7	Iron	268		ug/L	100	1	11/22/2010	SW	1011094
200.7	Magnesium	9690		ug/L	100	1	11/22/2010	SW	1011094
200.7	Manganese	1620		ug/L	2.00	1	11/22/2010	SW	1011094
200.7	Potassium	714	J	ug/L	250	1	11/22/2010	SW	1011094
200.7	Sodium	1620		ug/L	250	1	11/22/2010	SW	1011094
200.7	Zinc	907		ug/L	10.0	1	11/22/2010	SW	1011094
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Barium	29.0	J	ug/L	25.0	5	11/22/2010	SV	1011094
200.8	Beryllium	1.05		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Cadmium	3.79		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Cobalt	20.6		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Copper	150		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Lead	9.44		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Nickel	13.6		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011094

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #:

DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW046

Date / Time Sampled: 10/26/10 00:00

Workorder: C101101

EPA Tag No.: No Tag Prefix-26

Matrix: Surface Water

Lab Number: C101101-51 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	8340		ug/L	20.0	1	11/22/2010	SW	1011094
200.7	Calcium	170000		ug/L	100	1	11/22/2010	SW	1011094
200.7	Iron	20000		ug/L	100	1	11/22/2010	SW	1011094
200.7	Magnesium	11300		ug/L	100	1	11/22/2010	SW	1011094
200.7	Manganese	5780		ug/L	2.00	1	11/22/2010	SW	1011094
200.7	Potassium	1660		ug/L	250	1	11/22/2010	SW	1011094
200.7	Sodium	4030		ug/L	250	1	11/22/2010	SW	1011094
200.7	Zinc	3230		ug/L	10.0	1	11/22/2010	SW	1011094
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011094
200.8	Beryllium	1.52		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Cadmium	8.60		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Cobalt	28.2		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Copper	212		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Lead	24.8		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Nickel	13.2		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011094

Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #:

DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW047	Date / Time Sampled: 10/26/10 00:00	Workorder: C101101
EPA Tag No.: No Tag Prefix-27	Matrix: Surface Water	Lab Number: C101101-52 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	8450		ug/L	20.0	1	11/22/2010	SW	1011094
200.7	Calcium	170000		ug/L	100	1	11/22/2010	SW	1011094
200.7	Iron	21800		ug/L	100	1	11/22/2010	SW	1011094
200.7	Magnesium	11400		ug/L	100	1	11/22/2010	SW	1011094
200.7	Manganese	5860		ug/L	2.00	1	11/22/2010	SW	1011094
200.7	Potassium	1680		ug/L	250	1	11/22/2010	SW	1011094
200.7	Sodium	3990		ug/L	250	1	11/22/2010	SW	1011094
200.7	Zinc	3320		ug/L	10.0	1	11/22/2010	SW	1011094
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Arsenic	3.51	J	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011094
200.8	Beryllium	1.44		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Cadmium	8.99		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Cobalt	29.4		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Copper	225		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Lead	24.7		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Nickel	14.4		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011094

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW049
EPA Tag No.: No Tag Prefix-28Date / Time Sampled: 10/26/10 00:00
Matrix: Surface WaterWorkorder: C101101
Lab Number: C101101-53-A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	8900		ug/L	20.0	1	11/22/2010	SW	1011094
200.7	Calcium	171000		ug/L	100	1	11/22/2010	SW	1011094
200.7	Iron	24100		ug/L	100	1	11/22/2010	SW	1011094
200.7	Magnesium	11800		ug/L	100	1	11/22/2010	SW	1011094
200.7	Manganese	6180		ug/L	2.00	1	11/22/2010	SW	1011094
200.7	Potassium	1720		ug/L	250	1	11/22/2010	SW	1011094
200.7	Sodium	3870		ug/L	250	1	11/22/2010	SW	1011094
200.7	Zinc	3510		ug/L	10.0	1	11/22/2010	SW	1011094
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Arsenic	5.00	J	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011094
200.8	Beryllium	1.27		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Cadmium	9.51		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Cobalt	29.8		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Copper	239		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Lead	25.4		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Nickel	15.3		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011094

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #:

DG-216**Metals (Total Recov) by EPA 200/7000 Series Methods**

Station ID: UASW050 **Date / Time Sampled:** 10/26/10 00:00
EPA Tag No.: No Tag Prefix-29 **Matrix:** Surface Water **Workorder:** C101101
Lab Number: C101101-54-A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	8830		ug/L	20.0	1	11/22/2010	SW	1011094
200.7	Calcium	169000		ug/L	100	1	11/22/2010	SW	1011094
200.7	Iron	23900		ug/L	100	1	11/22/2010	SW	1011094
200.7	Magnesium	11700		ug/L	100	1	11/22/2010	SW	1011094
200.7	Manganese	6240		ug/L	2.00	1	11/22/2010	SW	1011094
200.7	Potassium	1700		ug/L	250	1	11/22/2010	SW	1011094
200.7	Sodium	3810		ug/L	250	1	11/22/2010	SW	1011094
200.7	Zinc	3560		ug/L	10.0	1	11/22/2010	SW	1011094
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Arsenic	4.63	J	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011094
200.8	Beryllium	1.50		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Cadmium	9.70		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Cobalt	28.7		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Copper	235		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Lead	25.3		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Nickel	15.2		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011094

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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW054	Date / Time Sampled: 10/26/10 00:00	Workorder: C101101
EPA Tag No.: No Tag Prefix-30	Matrix: Surface Water	Lab Number: C101101-55 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	14400		ug/L	20.0	1	11/22/2010	SW	1011094
200.7	Calcium	35400		ug/L	100	1	11/22/2010	SW	1011094
200.7	Iron	27600		ug/L	100	1	11/22/2010	SW	1011094
200.7	Magnesium	7560		ug/L	100	1	11/22/2010	SW	1011094
200.7	Manganese	826		ug/L	2.00	1	11/22/2010	SW	1011094
200.7	Potassium	2130		ug/L	250	1	11/22/2010	SW	1011094
200.7	Sodium	1230		ug/L	250	1	11/22/2010	SW	1011094
200.7	Zinc	1350		ug/L	10.0	1	11/22/2010	SW	1011094
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Arsenic	17.0		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011094
200.8	Beryllium	0.726	J	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Cadmium	5.33		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Cobalt	26.1		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Copper	190		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Lead	57.3		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Nickel	19.6		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011094

Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW056	Date / Time Sampled: 10/27/10 00:00	Workorder: C101101
EPA Tag No.: No Tag Prefix-31	Matrix: Surface Water	Lab Number: C101101-56 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	5440		ug/L	20.0	1	11/22/2010	SW	1011094
200.7	Calcium	178000		ug/L	100	1	11/22/2010	SW	1011094
200.7	Iron	16000		ug/L	100	1	11/22/2010	SW	1011094
200.7	Magnesium	12200		ug/L	100	1	11/22/2010	SW	1011094
200.7	Manganese	8750		ug/L	2.00	1	11/22/2010	SW	1011094
200.7	Potassium	1100		ug/L	250	1	11/22/2010	SW	1011094
200.7	Sodium	4280		ug/L	250	1	11/22/2010	SW	1011094
200.7	Zinc	4850		ug/L	10.0	1	11/22/2010	SW	1011094
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011094
200.8	Beryllium	1.75		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Cadmium	12.7		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Cobalt	30.4		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Copper	355		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Lead	26.8		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Nickel	12.2		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011094

DS
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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW058
EPA Tag No.: No Tag Prefix-32Date / Time Sampled: 10/27/10 00:00
Matrix: Surface WaterWorkorder: C101101
Lab Number: C101101-57 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	5510		ug/L	20.0	1	11/22/2010	SW	1011094
200.7	Calcium	182000		ug/L	100	1	11/22/2010	SW	1011094
200.7	Iron	15900		ug/L	100	1	11/22/2010	SW	1011094
200.7	Magnesium	12600		ug/L	100	1	11/22/2010	SW	1011094
200.7	Manganese	9150		ug/L	2.00	1	11/22/2010	SW	1011094
200.7	Potassium	1070		ug/L	250	1	11/22/2010	SW	1011094
200.7	Sodium	4370		ug/L	250	1	11/22/2010	SW	1011094
200.7	Zinc	5130		ug/L	10.0	1	11/22/2010	SW	1011094
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011094
200.8	Beryllium	1.52		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Cadmium	13.7		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Cobalt	30.4		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Copper	366		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Lead	27.9		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Nickel	12.6		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011094

DS
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Project Name: Upper Animas - Water - Oct 2010

Certificate of Analysis

TDF #: DG-216

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: UASW059 **Date / Time Sampled:** 10/31/10 12:40 **Workorder:** C101101
EPA Tag No.: No Tag Prefix-56 **Matrix:** Surface Water **Lab Number:** C101101-58 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	13200		ug/L	20.0	1	11/22/2010	SW	1011094
200.7	Calcium	17400		ug/L	100	1	11/22/2010	SW	1011094
200.7	Iron	46400		ug/L	100	1	11/22/2010	SW	1011094
200.7	Magnesium	12000		ug/L	100	1	11/22/2010	SW	1011094
200.7	Manganese	8740		ug/L	2.00	1	11/22/2010	SW	1011094
200.7	Potassium	362	J	ug/L	250	1	11/22/2010	SW	1011094
200.7	Sodium	626		ug/L	250	1	11/22/2010	SW	1011094
200.7	Zinc	24900		ug/L	10.0	1	11/22/2010	SW	1011094
200.8	Antimony	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Arsenic	26.9		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Barium	< 50.0	U	ug/L	25.0	5	11/22/2010	SV	1011094
200.8	Beryllium	0.940	J	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Cadmium	105		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Chromium	5.46		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Cobalt	25.6		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Copper	4690		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Lead	33.8		ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Molybdenum	< 1.00	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Nickel	16.4		ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/22/2010	SV	1011094
200.8	Thallium	< 5.00	U	ug/L	2.50	5	11/22/2010	SV	1011094
200.8	Vanadium	< 10.0	U	ug/L	5.00	5	11/22/2010	SV	1011094

"J" Qualifier indicates an estimated value